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GENERAL NOTES

ANNUAL MEETING.—As announced in the November *Bulletin* the Annual Meeting will be held at the University of Pennsylvania, Friday, December 31, and Saturday, January 1.

STATE UNIVERSITIES AND STATE COLLEGES; ANALYSIS OF EXPENDITURES.—Higher Education *Circular*, No. 32, of the United States Bureau of Education contains an analysis of expenditure of state universities and colleges during 1924-1925, the classification including under Operation and Maintenance, salaries and wages, materials, and other supplies; under Capital Outlay, equipment, land, buildings, and improvements. The largest expenditure for salaries and wages is \$5,000,000 at the University of California, the University of Michigan coming second with \$4,500,000; twenty-eight other institutions spend more than \$1,000,000 each on salaries and wages. The University of Michigan spends the largest amount for equipment and for land and buildings. The totals for the institutions listed are salaries and wages, \$79,000,000, materials, supplies, etc., \$36,000,000, land, buildings, etc., nearly \$22,000,000.

RELATION BETWEEN AGE AND PROMOTION OF UNIVERSITY PROFESSORS.—*School and Society* for September 25 contains a statistical study of this subject by H. D. Kitson of Teachers College, showing for Columbia University and the University of Chicago: age of reaching the bachelors degree; age of appointment as instructor, 29.6 at Columbia, 31.2 at Chicago; as assistant professor, 35 at Columbia, 35.2 at Chicago; as professor, 40.3 at Columbia, 43.9 at Chicago. For the relatively small number of women in the two faculties the corresponding figures were: instructor, 33.3 and 36.5; assistant professor, 36.5 and 38.8; professor, 46.5 and 52.7. All these figures related to the academic year 1925-26, including only those who had entered the institutions as instructors or assistant professors, and whose records and progress were thus available. A second table gives vocational histories of one hundred professors of chemistry and one hundred professors of mathematics in colleges and universities in the United States, these being chosen at random from lists on file with the National Research Council. The average age of 44 chemists appointed instructors was 26.1; of 68 mathematicians 26.3; for assistant professors, 30 chemists 28.6; 45 mathe-

micians 30.2; of professors, 100 chemists 34.5; 100 mathematicians 35.6.

AMERICAN FIELD SERVICE FELLOWSHIPS FOR FRENCH UNIVERSITIES.—"A limited number of fellowships, open only to men, for advanced study in France will be awarded for the year 1927-28. Each will carry a stipend of \$1200 and will be tenable for one year, with possibility of renewal for a second year if circumstances are favorable."

Application blanks may be obtained from the Institute of International Education, 522 Fifth Avenue, New York.

FELLOWSHIPS FOR GERMAN UNIVERSITIES.—"The American German Student Exchange, Inc., announces that a limited number of fellowships for study in Germany will be awarded to American students for the year 1927-28.

"German universities have established these fellowships as an international exchange for similar fellowships established by American colleges for German students. It is hoped that the Fellows will do their part toward developing international friendship and good will by creating a tradition of cooperation and reciprocity between the United States and Germany in the study of the institutions and psychology of the two countries. The fellowships are open to both men and women."

Application blanks may be obtained from the Institute of International Education, 522 Fifth Avenue, New York.

AMERICAN LIBRARY IN PARIS, REFERENCE SERVICE.—The Reference Service on International Affairs of the American Library in Paris has recently issued an important bibliography of the official publications of all European governments. Under the heading General Administration a description of official journals is given; under Parliament, the principal publications of each body are listed. Periodical publications which no longer appear have been included only in case of features of special interest. A complete list has been prepared of diplomatic documents issued by each ministry of foreign affairs, except for France, Italy, and Germany, where separate bibliographies are, or will be, obtainable. The edition in mimeographed form is limited to one hundred copies at \$10. Further

information may be obtained by writing the American Library in Paris, 10, rue de l'Elysée, Paris.

THE RETIREMENT OF UNIVERSITY PROFESSORS IN GERMANY.— "As a result of the provision contained in the new federal constitution to the effect that government officials, clerks, and employees must be pensioned at the age of 68, at the latest, many head professors of the medical faculties, who had reached the age limit, have been retired. Professors who had not felt that they needed to be pensioned as yet have complained bitterly of their enforced retirement. It may be that many of these were perfectly able to carry on for some time longer, but, in general, when the age of 68 has been reached it is time for younger men to take the helm. In Germany, enforced retirement on attaining a certain age is all the more justified for two reasons: (1) During the war many professors aged more rapidly than normally, and (2) during the war fewer promotions were made, and there is consequently a larger number in the oncoming generation awaiting openings. One thing that makes the pensioning of head professors more durable is the fact that it affects only the management of institutes, clinics, and the like. Otherwise, pensioned professors are entitled to continue holding their lectures; they remain members of the faculty and receive also the entire salary and lecture fees that they collect from students. During recent years, the aforementioned retirement regulation has brought about many changes in the medical faculty at Berlin and elsewhere."

Journal of the American Medical Association.

A CORRECTION.—In the October *Bulletin*, page 397, in the report of Committee G on the selection of undergraduates, the statement was made that in several of the better Western State universities Latin is not accepted as a foreign language for entrance. This was based upon a statement contained on page 105 of the Seventh Annual Report of the President of the Carnegie Foundation for the Advancement of Teaching, to which reference was made. It appears that the statement in the *Bulletin* is not true, now at least for the institutions mentioned by name in the report of the Carnegie Foundation.

SOCIETIES, NOTES AND REPORTS

ASSOCIATION OF AMERICAN COLLEGES.—The May *Bulletin* of the Association included the following addresses on the general subject of the "Effective College:" "The Unit Size," Harlan Updegraff and Rufus B. von Klein Smid; "Business Administration," William O. Miller; "What Should Education Cost?" Floyd W. Reeves; "A Department of College and University Administration," Robert J. Leonard; "Personnel Technique," A. L. Jones; "The Curriculum," Leon B. Richardson; "Honors Course," Frances F. Bernard, R. C. Brooks; "The Comprehensive Examination," J. S. P. Tatlock; "Faculty-Student Cooperation," E. H. Wilkins; "Athletics," H. J. Savage, R. D. Moody, and C. A. Richmond.

The Annual Meeting of the Association will be held in Chicago, January 13-15, 1927. The discussion of "The Effective College" begun at the Annual Meeting, January, 1926, will be continued. The program includes the following subjects: "The Relations between Faculty and Students," President Little, Michigan; "The Financial Needs of a College of One Thousand Students," President Cowling, Carleton; "The Curriculum in an Effective College," Dean Hawkes, Columbia; "The Promotion of Effective Teaching," Dean Randall, Brown; "Sectioning on the Basis of Ability," Colonel Holt, United States Military Academy; "Personnel Technique in the Effective College—The Handling of Freshmen," Dr. Jones, Columbia; "The Latest Developments in Intercollegiate Athletics," Dean Nollen, Grinnell; "Should Teachers Teach?" President Parsons, Marietta; "Does Scholarship Interfere with Teaching?" "Does Teaching Interfere with Scholarship?" President Mason, Chicago.

NATIONAL RESEARCH COUNCIL, RESEARCH INFORMATION SERVICE.—Much time has been spent during the past year in attempting to assemble data for the issuing of a Handbook of Scientific and Technical Societies to replace officially the Handbook of Learned Societies, issued in 1908. Replies have thus far been received from about one-third of the three thousand organizations from which information has been sought. In the compilation of statistics on doctorates in the sciences granted during the past academic year, information has been received from all but two or three of the universities granting doctorates. A compilation of this material will be published this fall similar to compilations of these statistics for previous years.

COLLEGE ENTRANCE EXAMINATION BOARD.—*Scholastic Aptitude Test.* The twenty-sixth annual report of the Secretary gives a brief account of the twenty-fifth anniversary celebration, and then proceeds to a discussion of the recently inaugurated scholastic aptitude test, quoting from a statement by the committee in charge in part as follows:

"Any claims that aptitude tests now in use really *measure* 'general intelligence' or 'general ability' may or may not be substantiated. It has, however, been very generally established that high scores in such tests usually indicate ability to do a high order of scholastic work. The term 'scholastic aptitude' makes no stronger claim for such tests than that there is a tendency for individual differences in scores in these tests to be associated positively with individual differences in subsequent academic attainment.

"The assertion of a general positive relationship obtaining, on the whole, between aptitude tests and subsequent academic standing carries with it no certainty of prediction of inevitable academic disaster in the case of a specific person with a low test score. The logic of mutual implication takes on the semblance of certainty only when the totality of independent and interdependent factors is completely analyzed and understood. The present status of all efforts of man to measure or in any way estimate the worth of other men, or to evaluate the results of their nurture, or to reckon their potential possibilities, does not warrant any certainty of prediction.

"Boards of admission to colleges, now forced to estimate the future worth of candidates, need all information which is available and pertinent to reach wise decisions. This additional test now made available through the instrumentality of the College Entrance Examination Board may help to resolve a few perplexing problems, but it should be regarded merely as a supplementary record. To place too great emphasis on test scores is as dangerous as the failure properly to evaluate any score or mark in conjunction with other measures and estimates which it supplements...

"It should be remembered that perfect prediction of academic attainment is impossible because of (1) technical difficulties of measurement of academic performance in separate courses, (2) variations in the motivation of students towards doing work in keeping with their ability, and (3) the total effect of unmeasured factors such as physical [conditions, emotional stability, interest, attitude, and

the thousand and one internal and external factors, which make or mar an academic career, or guide an individual first this way and then that. The total effect of these variables may be estimated by correlating average grades in one semester with average grades in another semester, years with years, and by other similar devices. Such studies have, in general, shown coefficients of correlation in the neighborhood of .75 to .85, indicating a very considerable amount of fluctuation in academic performance, and demonstrating, further, that coefficients of this size are the highest that methods of admission may be expected to yield.

"Boards of admission, therefore, are not confronted with the problem of perfect prediction, but with the problem of devising a method which gives the best possible prediction, or one with as high a correlation as possible with the most reliable combination of academic grades obtainable. This is a most important field for study and for continued follow-up, since after the work of the boards of admission is done, and the successful candidates are in college, the problems of educational administration follow. The usability of admissions data for motivation and guidance in college constitutes a fruitful field of investigation during the first two years of college.

"Institutions which have reported correlations between the weighted average of their students in the examinations of the College Entrance Examination Board and academic standing have already used these examinations as a basis of selecting their entering class. The coefficients reported are in the .40 and .50 range. The correlations do not express the true relationship between the examinations of the College Entrance Examination Board and subsequent standing, since practically all of the low candidates have been rejected by that very measure. The correlation for the total group of applicants could be directly found only by actually admitting everyone who applied, and then studying the records later. This disastrous experiment is avoided by estimating the size of the coefficient mathematically from certain data in the problem that are definitely known. Such analysis indicates that the coefficient for the total group of applicants is probably in the range between .60 and .70. The regular content examinations of the College Entrance Examination Board would therefore seem to be the best single method of college admission. Studies which seem to contradict this statement have all neglected to consider the influence of original selection by Board examinations as a factor tending to lower the observed correlation in college."

The accompanying statistics show that the scholastic aptitude test was taken by more than 8000 candidates, of whom more than 1300 took no other test; more than 900 were candidates for admission to Princeton; nearly 1300 for admission to the University of Pennsylvania, and more than 1300 for admission to Yale. A supplementary report by the committee discusses the test procedure in much detail.

The June examinations of the Board were attended by more than 22,000 candidates at 321 centers. The candidates came from 1047 public schools and 829 private schools. New England and the Middle States were the residence of 17,000, and the colleges in these states were chosen by more than 19,000 of the candidates. New plan candidates after a decline from 1922 to 1924, have now increased to 2700, of whom the great majority are entering the colleges for women. The usual statistics of ratings follow.

The 74,000 books were read by 661 readers at an average expense per book ranging from 29 cents for elementary algebra to \$1.95 for comprehensive English. The total expense of the Board per candidate is just under \$10, and the operations of the Board show an excess of receipts over disbursements amounting to more than \$24,000, nearly 10 per cent of the total receipts.

ADULT EDUCATION ASSOCIATION.—Formal opening of the national headquarters of the American Association for Adult Education at 41 East 42nd Street is announced.

The formation of the Association followed two years of preparatory work, including a series of conferences of educators in different parts of the country and a survey of existing efforts in adult education conducted by the Carnegie Corporation of New York. The results of the study are being published in five volumes now in press.

The reports showed that more than 3,000,000 men and women in the United States are pursuing some kind of education after working hours, either by correspondence or under public library guidance or in university extension classes, workers' education classes, workers' summer schools, folk schools, institutes or museum classes. Not only are more persons studying in such institutions than in all the colleges and universities in the United States combined, but in them a new theory and practice of education is being worked out, with its own problems, methods, and literature. While adult education is not so far advanced in the United States as in England and

continental European countries, it has assumed such proportions as to command the attention of the leading educators of the country.

The new Association has been formed to serve as a clearing house of adult education activities in the country, to help those already in operation, and advise others how to start. It will arrange educational meetings and issue publications dealing with adult education problems. The Association's members will include teachers and students in adult education, as well as institutions. It has already established relations with similar bodies in Europe.

The officers of the Association are: President, Dean James E. Russell of Teachers College, Columbia University; Vice-President, Professor Leon J. Richardson, University of California; Treasurer, J. H. Puelicher, American Bankers' Association, Milwaukee; Secretary, Miss Margaret Burton, National Board, Young Women's Christian Association, New York; and Executive Director, Morse A. Cartwright of New York.

ENGINEERING GRADUATES; ENGINEERING PERSONNEL.—The *Journal of Engineering Education* for October, 1926, is devoted largely to reports of the commission on Engineering Graduates and Former Students, and on Engineering Teaching Personnel. The purpose of the report on Engineering Graduates and on Non-Graduate Former Students was to obtain as accurate and complete information as possible regarding the careers of engineering graduates and the relationship of their work to courses pursued in college; to determine the means through which they obtain first positions; to gather information regarding their early experiences and adjustments to industrial life; and to obtain their opinions regarding various phases of engineering education. Data were collected from more than 3900 recent graduates of forty-three institutions; more than 2300 graduates of thirty-four institutions at five-yearly periods, from 1884 to 1919, and more than 700 other former students of fourteen institutions. The tables aim to show the relation between the professional courses taken in college and the subsequent occupation; the earnings of graduates at different ages; methods of placement; and the graduates' estimates of the value of different groups of subjects in the curriculum. A summary of the problem of means of betterment reads in part as follows:

"The problem of the vocational guidance of engineering graduates

seems, therefore, to resolve itself into one of finding ways and means of giving the prospective graduate a conception of the functional or vocational arrangement of engineering work as it actually exists and of providing means whereby he may be brought to think of himself, his instincts, tastes, personality, ability, etc., in terms of the requirements for successful work in these several functions.

"Some of the possible means of accomplishing this objective embrace the following:

"A. The presentation of a well-organized series of lectures to all seniors in which industry would cooperate by supplying speakers competent to give a clear picture of the nature of the work and opportunities in their respective fields. One lecture of such a series might well include the facts as to lines of employment of recent and older graduates presented herein. These data lend themselves to diagrammatic presentation and can be shown by lantern slides.

"B. Better organization of the time and efforts of employment representatives when visiting colleges so as to conflict least with classes during the recruiting periods. Assistance might also be given the representatives in the determination of those seniors best adapted to the work in each specific industry.

"C. In order that all possible information may be available in aiding both the graduate and the industry in wise selection, it would be advisable for colleges to maintain personnel records of all their students. These would be of considerable educational value and would be particularly helpful in connection with employment. A representative of industry indicates that employers would be interested in the following data."

1. To identify the student: (a) Name; (b) Home address; (c) College address and telephone number; (d) Age, height, and weight.
2. To indicate the influence of heredity and home environment: (a) Parents' education, occupation, and nationality; (b) Church affiliations.
3. To indicate educational attainment and grade of mentality: (a) Preparatory or high school scholastic records and name of school; (b) Recommendation of preparatory or high school principal before entering college; (c) College scholastic record including all honors and special recognitions; (d) Name of intelligence test and rating of the student (if tests are given); (e) Chronological record of personal conferences with the student including reasons therefor, recommendations made, and if possible, the effect.
4. To indicate physical condition and capacity for leadership: (a) Record of physical examinations. Defects and doctor's recommendations, both upon entering college and at the beginning of the senior year; (b) Record of participation in college activities; (c) Record of athletic activities; (d) R. O. T. C. or military record; (e) Membership in professional societies.
5. To indicate previous experience and degree of dependence: (a) Po-

sitions held, name of employer, type of work, with dates; (b) Portion of college expenses earned.

6. To indicate effect of the above influences in the development of personal characteristics. Ratings by the dean, department head, or individual members of the faculty on: (a) Personal appearance; (b) Culture; (c) Mentality; (d) Leadership; (e) Reliability; (f) Capacity for growth.

7. To indicate the student's aptitude for particular fields of endeavor: (a) A statement from the student as to what he feels he would like to do and could be most successful in, giving reasons wherever possible; (b) Statement of the dean or department head of his opinion as to what field of endeavor the student should enter, with reasons.

Continuation of Education after Leaving College.—“The time is ripe for the colleges to consider ways and means of assisting graduates in educational work after leaving college. It is worthy of note that in the year 1925–26 upward of 1100 students were pursuing graduate courses in engineering, this number representing about one-eighth of the number receiving first degrees in the previous year. It is gratifying that this number is so large and it is probable that provision for such work should be even more extensive, provided always that it is kept on a high plane and that enthusiasm does not lead to the establishment of graduate courses without adequate teaching personnel and facilities. The mere provision of graduate courses, however, does not entirely meet the situation. As previously stated, it is both necessary and desirable that a majority of graduates should begin productive work in actual practice immediately upon completion of their undergraduate courses.

“There appears to be a distinct, though undeveloped field of opportunity for the colleges to assist these young men in extending their education. As possible means to these ends, the following suggestions are offered:

“1. The colleges may make well-outlined reading courses available to such graduates as apply for them.

“2. Certain institutions, if properly manned and organized, may offer correspondence courses. Subjects such as contracts and specifications; industrial organization and planning; commercial methods, organizations, and law; cost accounting; and financial methods lend themselves to instruction by this means.

“3. In certain cases extension courses such as those given by the University of Wisconsin for graduate students in Milwaukee may be set up in industrial centers in which graduates in particular fields can confer with representatives of the institutions at regular intervals. Post-scholastic courses of the following types may be offered:

(a) Advanced work of the kind given in post-graduate residence courses in mathematics, physics, and engineering subjects.

(b) Courses dealing with recent developments, designed to enable graduates to keep abreast of scientific progress.

(c) Seminars for the discussion in the light of fundamental theory of (1) Allied research problems; (2) Design problems; (3) Operating problems.

"4. The engineering colleges may individually undertake to furnish advisory services to alumni and other engineers in the vicinity of the colleges to assist in such matters as:

(a) Recommended reading courses.

(b) Supplying of information as to educational facilities available in the community in which the graduate is located.

(c) Advice and suggestions relative to engineering problems of the kind rendered to students in residence who are engaged in thesis projects.

"It is recognized that there are limitations imposed by the budget and that different institutions will find different methods possible or serviceable. The present purpose, however, is to call attention to the opportunity and need for work among the graduates and to affirm the belief that no other undeveloped activity of the engineering colleges offers larger possibilities for increased service.

Teaching Personnel.—"The report on engineering teaching personnel is based on information from nearly 2300 teachers in seventy-five institutions and discusses the policy of colleges in connection with the recruitment and development of teaching staffs for 116 institutions, the sources from which teachers are drawn, and positions which teachers fill when they leave the colleges, from seventy-one institutions; the degrees held by teachers in engineering institutions, 143 institutions and 8598 teachers; the teaching load of engineering teachers, 2289 in seventy-six institutions.

Losses of Teachers to Practice and Industry.—"Commenting on the losses during the five-year period, it appears that the annual turnover for all grades of teachers and for all changes of positions is about ten per cent. The actual annual loss of teachers by the institutions is about seven per cent. In the grades of instructor and assistant the percentage of losses is much larger than in the professorial grades, 11.5 per cent as compared with 3.35 per cent. The total percentages of teachers who change their positions per year to go to other institutions or to leave teaching are as follows: to take another teaching position, 3.37 per cent; to enter practice, 4.46 per cent; to enter business, 1.09 per cent; to enter other activities, 1.13 per

cent, a total of 10.1 per cent, as above mentioned. The total loss of teachers above the rank of instructor per year is about three and one-third per cent of the total number of teachers of those ranks...

Economic Status of Engineering Teachers.—“About 2850 questionnaire cards were distributed to members of the staffs of seventy-five representative institutions throughout the United States and Canada. Eighty per cent of those canvassed, or a total of 2279 individuals submitted responses in a form which could be tabulated...

“At the start the teachers salary and total earned income exceed the earnings of graduates by a small amount. At the end of one year their total incomes are practically equal. After one year the teachers earn steadily less than graduates in practice, until at the thirtieth year after graduation the median total earnings of teachers are but seventy-four per cent of those of graduates in practice. When academic salaries—either median or most frequent—are made the basis of comparison, the status of the teacher as to earnings is, of course, still less favorable. The young teacher beginning his career must look forward in general to a smaller income than if he went into practice—assuming that this earning capacity in industry is proportionately as great as it is in teaching...

“The general average *teaching load* carried by teachers of all ranks, from which departures for the various grades are surprisingly small, is 17.6 hours per week. Excluding the deans the average load is 18.0 hours per week. It is interesting to note that if the average length of the classroom hour be taken at 55 minutes, the teaching load for engineering teachers (excluding deans) is 990 minutes per week, which is very close to the average for high school teachers carrying a full schedule of 1000 minutes per week...

Professional Practice during the Academic Year.—“The data indicate that teachers are permitted to engage in practice during term time in ninety-six per cent of the 116 institutions supplying information. Only five institutions among the state universities and state land grant colleges do not permit it. The practice is encouraged in 68.5 per cent, tolerated in 27.0 per cent, and discouraged in only 2.7 per cent of those institutions which permit it...

Sabbatical Leave.—“Sixty-five per cent of the institutions have no policies as to sabbatical leaves for teachers of engineering. Thirty-

two per cent of the institutions have policies of varying types. The frequency of permitted leaves varies from one-half year in three to one in eight; the term sabbatical evidently not being confined to its strictly derivative sense. Salary during leave is usually adjusted on the basis of half year with full pay or full year with half pay.

"It is rather significant to note that in the past five years only seventy-seven leaves of absence of all kinds have been taken by teachers of engineering in 116 institutions having a total faculty of perhaps three thousand members. . .

The General Situation.—"The general situation as regards teaching personnel, in so far as it is disclosed by the data collected, is on the whole an encouraging one. The teachers of engineering subjects are certainly doing their work energetically and conscientiously; they are obviously thoroughly alive to the fact that they have important problems before them and are earnestly and actively seeking their solution. This in itself is an evidence of vitality which indicates that the time is ripe for an advance to a high level of achievement. . .

Selection of Teachers.—"The losses to practice, industry, and business are relatively small particularly in the higher ranks and there is nothing in the data to support the often-heard complaint that industry to a dangerous extent is draining the schools of their best men. It must be remembered, however, that the data cannot show to what extent those whom we do lose are the sort with which we can least afford to part.

"Are we drawing our younger teachers from among the highest level of those graduating year after year from our engineering schools as measured not alone by their scholastic records but by their character and all-round promise? Many of those in administrative positions feel that in general we are not doing so but that industry and practice are getting and holding these men, and that it is in just this way that industry is taking away the best talent from the teaching profession. To avoid a danger of this sort and to obtain the best possible material it will be necessary to render teaching positions so attractive that they will be eagerly competed for. If we can by any means whatsoever render the professorial position generally recognized as one of real prestige, to be gained

and held only through severe competition and hard work, our problem is solved. Larger and adequate salaries, larger opportunities to take part in engineering practice or research work, or both, a more careful scrutiny of candidates on the basis of all-round qualifications, will doubtless be the principal means toward the end desired.

"In many universities instruction in mathematics and physics is not under the jurisdiction of the engineering division or school, but under a university department over which the engineering faculty has little or no direct control, and indeed has often very little influence either as to the engaging of teachers or as to the subject-matter of the instruction. It is perfectly well known that there is too often a lack of proper coordination between one or both of these subjects and the engineering work. There are often sharp differences of opinion and lack of understanding between the teachers of these subjects and those who teach the technical courses which are of themselves so largely compounded of what is essentially physics and mathematics.

Teaching Loads.—"The teaching load for all ranks is uniformly heavy as compared with that borne in general by academic teachers. The average number of teaching hours (actual contact hours of fifty-five minutes each) is very close to eighteen and there is no great departure from this average for any rank (excluding deans). The general opinion seems to be that eighteen hours of actual teaching is too heavy a load since it certainly entails at least an equal amount of auxiliary work, preparation, marking of papers, etc., and that therefore the total amount of time and effort expended on the teaching duties alone leaves too small a margin for time for developing professional contacts, research, study, recreation, exercise, and in short, general self-development. The small amount of outside professional work and the very meager number of hours which on the average are devoted to research work support this contention. Fifteen hours per week seem to be a more desirable general maximum teaching load. . . .

Textbook Writing.—"The value of this work when done by teachers of ripe experience and recognized attainments in their chosen field cannot be questioned. Neither can it be doubted that the younger and less experienced teacher may, through the writing of texts,

extend and consolidate his knowledge of his subject and improve himself in the exposition of it. We may, however, fairly question whether the time thus spent might not, if spent in productive investigations, research, or in professional work, result in a more real and enduring benefit to engineering science and to the teacher himself . . .

Compensation and Tenure.—“The question of financial remuneration plays a most important part in securing and maintaining satisfactory teaching personnel. Whatever may be said regarding the other compensations which reward the teacher’s career, in the last analysis the financial return will be found to be the most important single consideration. The proposition is difficult to state without offense to some of our cherished ideals and without laying ourselves open to the charge of a materialistic bias.

“The data show clearly that engineering teachers’ salaries even when supplemented by outside earnings are decidedly less than are the incomes of the most nearly comparable class, engineering graduates in practice. . .

“If salaries and total earned incomes of engineering teachers remain on the present basis it will doubtless be true in the future as it has been in the past that the teaching profession will continue to attract able men who are willing to face the smaller financial returns because of the opportunities for study and research, and for the relative freedom and permanency to be found in academic positions. Men in practice who have perhaps laid by a competence and have a taste for scholarly pursuits and an interest in education, and who perhaps have had all the experience in practical affairs they want, will from time to time join the ranks of the teachers. Possibly a permanent and not too strenuous berth with pleasant social accompaniments appeals to them. We shall, however, still continue to get too large a proportion of men who do not represent the highest type of our graduates, and who seem to gravitate toward teaching from negative rather than positive reasons. . .

“If we are to raise the general standard of our teaching personnel above the present level (and this appears to be the essential and most obvious means of improving engineering education), we must, as remarked above, offer salaries which are at least the equivalent of the financial return which the engineering graduate may reasonably expect to receive in practice. . .

Proposed Salary Scale.—“In proposing an increased salary scale it is clear that it is impossible to devise one which will be suitable for all schools, and also that to propose such an increase is very easy, but to get it is quite a different matter. The scale proposed below should be regarded as a goal toward which we may at least work. It is a scale which will have to be met before long by those schools which aim to provide the highest grade of engineering training such as is being demanded by the public we are striving to serve. .

Position	Salary	Approximate Normal Number of Years after Receiving First Degree
Instructor.....	\$ 1,500	1
	1,800	2
	2,100	3
	2,500	4
	3,000	5
	3,500	6
Assistant Professor.....	4,000	8
	4,500	10
	5,000	12
	5,500	14
Associate Professor.....	6,000	17
	6,500	20
Professor.....	7,500	21, et seq.
Increase to maximum of.....	12,000	

Proposed Normal Schedule of Promotion.—“Provision is made for a steady and rapid yearly increase up to \$3500. The data indicate that promotion to the first professorial grade comes, if at all, usually within the first eight years. This seems a reasonable apprenticeship, but if for any reason it appeared desirable to shorten or lengthen this period the salary appropriate to the position should be paid. During the assistant professorial period a substantial salary beginning at \$4000 with \$500 increases at two-year intervals is proposed. It is during this time of life that the teacher generally feels most keenly the pinch of insufficient means. During this time he should be in a position to make social and professional contacts and have time for research work and for some recreation and exercise.

“It is assumed that men will not be passed into the associate grade unless they have pretty fully demonstrated their ability

and are in line for a professorship. On the other hand it might be a grade appropriate for the occasional man whose value as a teacher, or as a teacher and officer, is well recognized but whose all-round attainments are not such as to single him out for the highest rank.

Tenure.—“Permanent tenure is generally looked upon at present as an accepted prerogative of the teacher which profane hands must not touch. If, however, any such salaries as herein proposed for the full professorial rank were actually put in operation there would be some of those concerned with the administrative side of education who would at once raise the question as to whether the permanency feature of the full professor’s position might not be omitted with substantial benefit to education. If the remuneration is adequate why should a professor be guaranteed a permanent position irrespective of the manner in which he continues to do his work any more than a man in any other position of responsibility?

Personal and Professional Development.—“The nature of the teacher’s work tends in some measure toward monotony. The constant reiteration of facts and principles to immature students, less wise and experienced than the teacher himself, tends toward pedantry and often develops a false sense of infallibility. Some of these qualities of character and personality which are called into play and developed by work in the practical world outside, lie dormant or tend to atrophy under the conditions that surround the teacher. He is not unlikely to withdraw himself from the interests and contacts of a world which he is nevertheless preparing his students to enter. To offset these dangers, it is important that the engineering teacher should have every opportunity to secure a sufficient contact with the problems which his brother engineer in practice is working on and with the conditions under which these problems must be solved. . .

“It seems to be clear that it would be advantageous if all engineering schools not only encouraged their teachers to do a reasonable amount of outside professional work, but actually insisted on it and made a systematic and organized effort to promote it. Such action with reference to the younger teachers before they have become permanently settled in teaching positions would be most beneficial. Particular emphasis may be laid on the importance of such oppor-

tunities during vacations, for then is the most favorable time for a satisfactory and mutually advantageous cooperation with industry. . .

"It is perhaps needless to qualify these statements by remarking that the character of the work should be such as to provide an experience which will react favorably on the academic work. Mere 'pot-boiling' jobs should be avoided.

"Only a third of the engineering colleges have any definite provisions for sabbatical or other regular leave, and only an insignificant number of engineering teachers avail themselves of the privilege where it exists. The question is obviously not a very live one. Leaves of absence might, however, well be made a more general practice. Such leaves should be granted so that members of the staff could devote themselves to study, research, or professional work calculated to advance their standing and afford them a desirable change of environment. The time of taking the leave and its duration should always be determined on the merits of the individual case.

Exchange of Professors.—“Although not touched upon in the questionnaire, the question of exchange of teachers for stated periods between our engineering schools should be considered. The practice is rarely indulged in by the engineering schools although not uncommon between colleges of liberal arts. Several quite obvious advantages both to institutions and the individuals participating would doubtless result from such exchange, and it is hereby recommended as a subject to be given careful consideration.

Training and Developing of Teachers.—“It is felt by many that a good deal could and should be done in the matter of training younger teachers. . .

“Even those who are *born* teachers can be *made better* teachers by direct instruction in the art of teaching. All those who have to act on the administrative side of education are painfully aware of the injustice that is inflicted on the student, particularly in elementary but basal courses where the instruction is even in part in the hands of inadequately trained teachers. This is probably in part unavoidable but there is certainly too little close supervision of young teachers and too little direct training.

“In the first place something can be done by way of developing the value of the departmental meetings which are held generally

throughout our engineering schools. If these conferences are held frequently enough and include discussions of the content of the courses offered by the department, the methods of presentation and marking, and the best possible correlation with related subjects both within and without the department, they are extremely valuable to the younger teacher. Too much standardization, however, should be avoided in order to preserve individual initiative and inventiveness.

"It is believed that the younger teachers might with advantage visit the classroom exercises of the older and more experienced teachers more generally than they do at present. Whether the more experienced teachers who have charge of the various courses could with equal advantage follow the practice of visiting classrooms of young teachers is not perhaps so clear. .

"There will be little disagreement with the statement that the real problem before us is that of securing the right type of teachers for our engineering faculties—that this constitutes a major problem in engineering education. On it hangs the satisfactory solution of our most serious educational difficulties."

EDUCATIONAL DISCUSSION

ASSOCIATION OF UNIVERSITY TEACHERS (BRITISH).—*The Ishmaelite.* "While it is not true that every man's hand is against the Ph.D., it is clear from the discussions of the past summer that this latest acquisition to the English hierarchy of degrees is by no means basking in the sunshine of universal popularity..."

"Indeed, the Ph.D. degree may tend to introduce the ethics of the counting house into our universities and extend into the realm of research and study the evils that some people associate with the Burnham Scale, which they hold, tends to make men work for a good degree, not because of the academic distinction it confers but because it means an additional twenty pounds on the exiguous salary of a teacher. The true scholar will always find the greatest satisfaction and the most attractive reward in the fact that he is helping to widen or extend the sphere of knowledge. When one remembers that some of the greatest names which adorn the long annals of British scholarship were content with a mere master's degree, until in the fullness of time they received some higher honorary distinction, we should pause before breaking with that honorable tradition. We have no reason to be ashamed of our scholarship, and it is a gratuitous insult to argue that we can only induce foreign students to come to our shores by giving them this new-fangled imported label. The words of a great English historian in this connection are timely: 'Socrates gave no diplomas or degrees and would have subjected any disciple who demanded one to a disconcerting catechism on the nature of true knowledge.'"

The *University Bulletin*, Vol. 6, No. 1.

GERMANY AND THE I. Q.—"Since the intelligence test in America has its acrid and violent antagonists as well as devout and uncritical protagonists it may perhaps be instructive as well as interesting for us to consider briefly the present status of the intelligence test in a territory somewhat removed from the immediate sphere of contention..."

"Some mention must be made of the Hamburg method of providing the teacher with the necessary psychological training to enable him to participate in the testing mechanism. Unlike Berlin, Hamburg seeks to bring the teacher up to the difficulty of the test employment rather than to simplify the process itself. In the words of Stern: 'The psychological methods have been woven into the

consciousness of the collaborating teacher and into the process of the selection itself.'

"By means of a most interesting organization some sixty teachers of both sexes were able to attend at the Hamburg Institute an introductory course in the theory and application of the intelligence test. A short time before Easter the children to be selected were transferred into trial classes which were to last from one week to two weeks. While the children of these classes were receiving their usual instruction they were also given the several mental tests in an absolutely inconspicuous and unobtrusive way. It has in fact been reported that the children are entirely unaware that they are being tested. The various tests give the impression of being some kind of new work. The element of nervousness is thus almost entirely eliminated. The teachers, moreover, who participate in the test have all been given what is believed to be an adequate background in the use of the testing method itself.

"Epitomizing the Hamburg method as directed by Stern we note that it seeks not quantitative results alone but also some qualitative idea of the child being tested. Collaborating with the psychologist is the teacher who throughout the school year compiles a scientifically worked-out observational record which is used side by side with the intelligence test in determining the final results. The great need of psychological training for teachers manipulating the tests is stressed. The manner of imparting such training at Hamburg is highly suggestive. Not only significant but also delightfully novel is the method of building the actual testing directly into the process of the ordinary school work itself. Most meaningful of all, however, is the almost uncanny success attained by Stern's method."

ADOLPH E. MEYER, in *School and Society*, No. 614.

JOSEPH PRIESTLEY ON LIBERAL EDUCATION.—"Ten years before discovering oxygen—that was in 1764—Joseph Priestley wrote an 'Essay on a Course of Liberal Education for Civil and Active Life,' saying that when he became a tutor in the old Warrington Academy he found... 'the far greater part of the students were young gentlemen designed for civil and active life, whereas the course of study, as in all other places of liberal education, was almost entirely adapted to the learned professions; and it occurred to me that, besides the lectures which they had been used to attend, other

courses might be introduced, which would bring them acquainted with such branches of knowledge as would be of more immediate use to them when they should come into life.'

"Accordingly, he proceeded to prepare a new curriculum. He was far in advance of his fellow educators, as the 'Essay' shows. Brief abstracts from it are these:

"I would recommend as new subjects: (1) Civil History and (2) Civil Policy; such as the theory of laws, government, manufactures, commerce...and (3) the study of the country's *present constitution* and *laws* that the student may acquire a more thorough acquaintance with his own country...Time was when scholars might, with a good grace, disclaim all pretensions to any branch of knowledge but what was taught in the universities...but those times of revived antiquity have had their use, and are now no more. We are obliged to the learned labours of our forefathers for searching into all the remains of antiquity, and illustrating ancient valuable authors; but their maxims of life will not suit the world as it is at present...The politeness of the times has brought the learned and the unlearned into more familiar intercourse than they had before. They find themselves obliged to converse upon the same topics. The subjects of history, politics, arts, manufacture, commerce, etc., are the general topics of all sensible conversation."

"Are not these suggestions modern in their tone and are not our technical schools, our schools of finance and commerce, of administration—products of these visions of Joseph Priestley upon a 'Liberal Education?'"

EDGAR F. SMITH, in *Science*, No. 1657.

THE NOBLE COMPANY OF THE LEARNED.¹—"I wish, and with all my heart, for a more effective *intramural* counteraction to the excessive influx of 'practical ideas' which threaten to strip college life of its greatest charm and utterly to squeeze out its already deflated idealism. The American university, as more than once we have been told in cold editorial type, bends to the breaking point under the materialism of our age. We are lacking in the time, the patience, the atmosphere of scholarship. And to me it seems that the overemphatic cautioning against 'highbrowism,' inculcated in our young people by academic elders who bestir themselves in the Boeotian movement against 'old-fashioned culture' and are

¹ Address delivered before the Washington University Chapters of Phi Beta Kappa and Sigma Xi.

setting the example of protective adaptation to extraneous standards, has been directly hurtful to the collegiate spirit, and thereby indirectly to the social weal. The premature commixture of scholarly ambitions with thoughts of business yields no elixir of life; it merely conduces to a shallow and colorless outlook on life during that formative period when ascendancy should be secured for the higher pitch and tonality of character. Need we really all be 'standardized?' And if so—be not sufficient unto the day the evil thereof? The money-maker may not, in the long run, represent the *beau ideal* of the nation. Besides, there are other elements than ours refractory to the inchoate amalgamation. On the march to the melting pot let the 'highbrow' give precedence to the Yahoo. There would be less to fear from the academic admiration for the business world, if commerce aimed honestly to subserve the actual needs of better living. But unfortunately the modern enthusiasm for salesmanship and the mania for advertising are not impelled by principled incentives. More than one colossal industry has been founded upon a hollow bluff. Many flourish upon the systematic seduction of a gullible public into buying what it does not want. The college ought to do nothing to diminish the healthy disgust of normal young people for business conducted by methods of swindle and for success based upon inane notions and erected upon human silliness...

"I must abstain from a thank-offering for the present stupendous popularity of college education. My elation over the ravenous appetite for the higher knowledge signalled by the sudden multiplication of students throughout the length and breadth of the land registers, I must say, an economic rather than educational gratification. Before chiming in with the enthusiasts, I want to know how Alma Mater—of course, I use the name broadly, collectively—has fared under this economic prosperity..."

"Our resultant fears, lest the prevailing enthusiasms for mass instruction—so contrary to the primitive intent of the *collegium*—toll the knell of those ideals under whose inspiration mankind has till now advanced over all casual lapses to higher stations, dissolve in the long perspective which students of history are privileged to take. For the aspiration of mankind throughout the civilized epochs of its existence has been marked, on the whole, despite of racial differences and temporal fluctuations, by an essential stability and sameness as to the ultimates. Hence we of the old

temple-guard dare cleave to a faith in the survival of intellectual accomplishment as the *jus et norma* of civic eminence, and this accordingly we would preserve as a criterion of merit for the college...

"So contagious has been the outsider's impatience to fashion the form and substance of learning to suit his own crude and dogmatic valuation of the goods of life that the academic household is sorely divided against itself, nay subdivided, about a re-definition of the prime purpose of a university. The slogans of this fight are familiar: 'Education for Efficiency'—'Education for Citizenship'—or for 'Leadership'—or for 'Character,' just now, 'Education for Service' roars above the din. A good cry is half the battle and strong enough, anyway, to break up harmony. All these definitions seem narrowing and superfluous; enough has been said when the university is described as a place where scholars congregate and function. That, in good conscience, is quite inclusive, and whatsoever is more than these words cometh of evil—the evil, to wit, of special pleading for partisan schemes be it of conservation or reform. Given an aggregation of scholars representative of knowledge in all its compass, and given an administration of broadly catholic yet truly balanced regard for the mental, moral, and practical ends of academic education, or briefly, given a competent and wisely governed faculty—is it idle to imagine that the university can provide no better boon for youth than through the teaching of its teachers? At the risk of branding myself a hopeless fogy let me whisper it in your ears: all the universities in the wide, wide world have been founded on the solemn understanding that in a university play is not 'the thing,' learning is. The conversion of the college into a playground is subversive of the purpose of a university. To scholarship belongs the right of way, on it the highest premium should be set, to it should go the highest consideration and marks of prestige in a community like ours...

"To all those catchwords about character, efficiency, citizenship, and the rest, the proper answer is, in Walt Whitman's fashion of speech: Produce thinking men, the rest follows. Nor, under such a conception of the university, could crudeness survive. Culture is an infallible effect of true learning; so that producing scholars, you also produce gentlemen...

"Yet after all the outlook for a peaceful coexistence of democracy with higher progress is not discouraging if we can yet prevent the sovereignty of outside opinion upon our preserves, and train the

future leaders of the nation to steer their course not by the pressure behind, but by the light ahead. To my way of thinking it is not paradoxical to say that a college cannot serve democracy better than by breeding aristocrats. I choose the word with etymologic discernment. Every social goal must represent some form of bestness. It seems reasonable enough to demand of a university that it should mould human material into an élite of the nation—a shock troop in the advance of culture which will not reflect the average strength and weakness but stand inflexible against the rampant utilitarianism which is our besetting fault as a people, and resist foolish and arrogant dictation whether it comes from the snob or from the mob. A crowd can be just as despotic as an individual. I hear a motion made by Robert Burns:

"The wretch that would a tyrant own,
And the wretch, his true-sworn brother
Who would set the mob above the throne—
May they be damn'd together.' "

OTTO HELLER.

RESEARCH IN THE COLLEGE.—"What Research in the College? The various departments of a college have their ups and downs, and the success attained by any department seems to me to rest upon a certain elusive spirit which pervades it. The thesis which I hope to defend in this paper is that more specifically a department, and in general a college, is successful to the degree in which the spirit of research has seized upon it. This spirit is not mechanically produced, neither can we tell how it is evolved nor how it is maintained but of its reality there can be no doubt... It should be the hope of college teachers everywhere that men and women in the classroom and laboratory would sense their creative powers in those fields which appeal to them and go out from academic halls to exercise those powers in their carefully selected professions, for it is from such students that our future leaders will come. Only the spirit of research can develop men and women of this type. Can this spirit of research be defined? As a working definition the spirit of research is the desire to seek for new truth... Whether a farmer discovers a new fertilizer for his soil that will make two blades of grass grow where only one grew before, or the physicist by crucial experiments is able to isolate and measure the elementary electrical

charge, their quest for new truth, their spirit of research has made them leaders in their profession, and it is such men and women which any college should seek to develop. If on the campus during those four formative years of young people's lives we can stimulate them to dream dreams and see visions of those creative powers which lie within their grasp, the criticisms which are levelled at the college will avail little. The spirit of research is our only way out... *Research on the Part of the Student.* The second phase of research in the college to be emphasized is the development of the research spirit in the undergraduate. This, to my mind, is not only the more important but the unique part of research in the college. How is this to be accomplished? (a) Definite research courses should be offered so that students know they are in the curriculum and with certain preparation may elect them. (b) For the high-grade students, in courses not primarily research courses, there should be opportunity to participate in creative work in the subjects in which they are interested, if they manifest a desire to do so. Whether in formally scheduled courses of research or in special extra-curricular arrangements, the work must be absolutely by free choice. I cannot conceive of a research course being required in a college as now organized...

"To apply the same method to freshmen and sophomores seems to me to offer no greater difficulty than that the teaching force would have to be increased, as this kind of work involves a great deal of individual attention. I have tried out this method on a very few promising sophomores and they have shown excellent progress.

"The experience gained in giving the same type of training in research work to all students, whether they planned to do graduate work in physics, to go into business immediately after college, or to enter any profession, has led me to the very decided conviction that every teacher should treat all his students as though each one was to become a specialist in his own line. This is by no manner of means saying that all students who enter my classes are enthusiastic for physics or will make physicists. The little, old, irascible German photographer in my native village had a profound philosophy in the remark, 'You can't make beaches out of bumpkins.' The implication is, however, that, given a fair trial, the research method will arouse more dormant students than any other method...

"We college teachers are prone to sniff at new methods, and I

have no hesitancy in saying that of all the groups of teachers from kindergarten to university we know the least about the formal arts and methods of teaching...

"*The 'Gifted Student' Problem.* Several organizations have spent considerable time and money in making a survey of the colleges of the country regarding the efforts put forth to encourage the gifted student. Their point of view was that the college spent too much time on the poor and mediocre student to the neglect of the good one. In their reports they offered various expedients, such as honor courses, weeding out poor students and raising the general standards of scholarship. From what has been said concerning research on the part of the student it must be evident how it will fit into the schedule to take care of the gifted student. If in any course a brilliant student appears and is not being pushed by the regular course, it becomes a comparatively easy matter to start the student on some problem, project, if you will, that will be of immense value and thus keep him more interested in the course than if kept in lockstep with the slower students. This seems to me the one outstanding method for encouraging the gifted student..."

"What is the conclusion of the whole matter? Do we wish to foster research in the college? We do, if thereby the college fulfills in a more efficient manner its function. The function of the college is that of education, whose purpose in turn is the complete development of inherited capacities or, to use the words of the militant Wiggam, it is 'to draw out and utilize each man's individual capacities, emotions, and powers.' I believe the inculcation of the spirit of research in our undergraduates is the best means yet for doing this."

S. R. WILLIAMS, from *School and Society*, No. 615.

THE REVOLT AGAINST EDUCATION.¹—"If I may again generalize very roughly, the gist of the historic transfer from the old tightly organized and dictated curriculum to the freedom of the elective system is this: Confronted with new facts and new knowledge, growing at a speed that outstripped the possibility of prompt correlation at the time, the educational world adopted as its method of handling knowledge the method that was *producing* knowledge, namely, specialization. It is measurably accurate, I think, to

¹ An address delivered at Harvard University, on Mar. 20, 1926.

say that the principle of specialization today dominates and directs almost entirely both curriculum content and teaching method. Few will dispute that the primacy of the principle of specialization is 90 per cent inevitable. This 90 per cent inevitability need not, however, blind us to some of the bad by-products of specialization. And I suspect that it is in devising ways and means for preventing these bad by-products of specialization that the next fruitful advances in educational policy and procedure are most likely to be made.

"Let me suggest, in passing, a few of the unhappy results of specialization as they affect scientists, men of affairs, students, and teachers.

"First, as respects scientists. It is the common uncritical assumption of the layman that while extreme specialization in education is the undoubted foe of broad culture it is the unquestioned friend of science. But it is obvious, I think, that the relatively unrestricted application of the principle of specialization to education may result in our producing generation after generation scientists of narrower and narrower intellectual equipment, until a time may come when we shall be producing scientific workers too narrow either to conceive or to comprehend those brave flights of imagination, those far-visioned generalizations, those creative hypotheses which have theretofore preceded and played a decisive part in producing every really epochal scientific advance. We may find it necessary to protect the specialists against specialization so that they may be better specialists.

"It may be worth while also to ask whether a failure to counterbalance the results of extreme specialization by a greater insurance than we now have of breadth and liberality of culture may not in time scale down the present widespread interest of students in science to something approaching the present interest in the classics. . . Did William James have this in mind when he said to F. C. S. Schiller that 'the natural enemy of any subject is the professor thereof.' . .

"Second, as respects men of affairs. . . In the absence of special provision by educators for the cultivation of coherence and range of basic culture, the rank and file of men of affairs who have gone out of our colleges will suffer from a fragmentation of background that will—when they begin to function as business men, bankers, railroad presidents, governors, senators, and presidents—prevent their keeping the social, economic, and political policies of

the nation in perspective. The control and correction of the bad by-products of specialization is, therefore, not only a technical problem of educational policy, but a national problem of first magnitude, the problem of the safety and sanity of our social order...

"This high end can be achieved only by making our colleges training grounds for political and industrial statesmen with perspective as well as power.

"Third, as respects students... If we are to equip the student for the continuing mastery of his specialism, we must see to it that he becomes acquainted with the larger streams of thought and life of which his specialism is only an eddy or part. There must be deliberate provision against the danger of tearing a specialism out of the common texture of the whole human research.

"Fourth, as respects teachers. There is always involved in an education that is dominated by the principle of specialization the temptation to permit specialization to become the master instead of the servant of the scholar. The teacher who succumbs to this temptation finds himself becoming more and more a slave to subject-matter, and finds his teaching effectiveness, as provoker and guide in the learning process, correspondingly diminished. And he is likely to end as a counterfeit educator who looks upon the educational process as the science of putting something into student-mind rather than as the art of starting something in the student-mind.

"Now is there anything we can do that we are not now doing about the various blights that have accompanied the blessings of specialization?...

"We might, I suggest, undertake to prevent the abuse and to promote the ultimate utility of specialization by making an effort to insure, as far as possible, that students shall at least be exposed to a broadly conceived and coherently organized body of general knowledge during years that precede the intensive specialization of graduate study and professional training...

"Such a new organization of subject-matter could be made possible only by the courageous willingness of educators to be tentatively dogmatic in saying what subject-matter will best induct the student into an understanding of his contemporary world, of the forces that have gone into its making from the past and of the living forces that are most likely to determine its future... The advantages of specialization would have to be sacrificed to gain the advantages of scope.

"It may be said that the orientation courses at the beginning and the summary courses at the end of the college years, with which educators have been experimenting, meet the situation into which specialization has plunged education. I doubt it. They are manifestly things tacked on to the regular college procedure. I suggest that any genuine orientation of the student to his world must be reached, if reached at all, *in* the regular college procedure, not *outside* it. . . .

"At least one thing is clear, I think, and that is that we shall find no really conclusive answer to the education dilemma growing out of the enormity and complexity of modern knowledge if we center our attention primarily on subject-matter and attempt to determine the future evolution of higher education mainly in terms of curriculum construction. Any such approach will inevitably drive us to a choice between superficial general knowledge and accurate specialized knowledge. But that would prove a sterile if not a suicidal choice. In the modern world, the encyclopedic mind is impossible, but the microscopic mind is ineffective in the larger and more creative adventures of life and learning.

"We are thus driven, I think, to look for the really creative development of education in the *methods* of teaching rather than in the *materials* of teaching.

"What would a greater emphasis upon the possible development of the mind to see and understand more quickly and accurately mean in terms of the work of our classrooms? . . .

"May it mean that our classrooms will more and more become places in which the students rather than the teachers perform? May it mean that usually the best teacher will be the man who says the least in his classroom?

"May it mean the virtual scrapping of the lecture system? . . . Some one told me that James Harvey Robinson began an address on learning by saying, 'There are a couple of things that I think can be said about learning: First, it doesn't seem to have much to do with teaching; and, second, it doesn't seem to have much to do with studying.' Back of this engaging statement lay a recognition of this fundamental truth—over-formalization in the teaching process kills the spirit of learning in the student mind. I suspect, therefore, that the next great advance in education, outside the legitimate areas of intensive specialization, will be marked by a fluidizing of its present rigid formalizations, by an extensive in-

formalizing of the teaching process. And this will bring us to this stubborn riddle: How can we institutionalize informality? . . .

"There is, I think, a special reason why we should consider the problem of the freshmen and sophomore years promptly. For, as I see it, unless with decent promptness we bring a fresh coherence and fruitful comprehensiveness into the curriculum of the freshman and sophomore years of our colleges of liberal arts, the junior college movement may proceed as a merely mechanical split-off, a merely administrative secession, with no meaning beyond a decentralization of the chaos and confusion of our present educational inefficiency."

GLENN FRANK in *School and Society*, No. 598.

RECENT TENDENCIES IN EDUCATION.—"Now the newer thought, at least in colleges, is concerned more with the use made of opportunities, the character, energy and ambition of the student. We are regarding education less as a matter of information, more as a stimulating, and incidentally as a selective, process. We are thinking not of the course, but of the student, as the unit to be considered. We are moving away from the counting of educational credits, toward a final measurement of the student himself as the product of the system; and we are learning that above the rudimentary technical skill acquired by reading, writing, and arithmetic, all real education is essentially self-education—a principle that becomes more and more true the higher the stage reached.

"Strange contradictions appear where one looks for any single principle which may be regarded as the pervasive tenet in the whole life of a community. In American industry there is a marked tendency to increase the speed of production, to make high wages possible by means of methods; but in education the same principle is not applied, and our youth go less rapidly than those in the more advanced European countries. This is a serious defect which extends well-nigh throughout our educational system. At every point we do things too late. We send children to the kindergarten at an age when they should be in the primary school; and in some cities close at hand we do not allow them to go to the public schools at all until the appropriate time for kindergarten has passed. The children are therefore doing in the primary, grammar, and high schools much that they ought to have done earlier, and they are doing it at too slow a pace—certainly too slowly for those among them who

are capable of going far and should be helped to go fast. When an improvement is made in the method of teaching it seems to be used to enable the child to spend less time in school, rather than to enable him to advance on the long path of his education more quickly.

"The retardation culminates in the colleges, where, at the age when a foreign student enters his university, an American takes, in most places, two years of secondary school character before he is fitted for work of university grade. . . Any exaggerated interest in athletics has been due not so much to their peculiar fascination for young men, as to the lack of serious interest in academic work—a failing which colleges are trying to remedy in various ways, but on the whole with notable success; and it may be observed that an exaggeration of the importance of athletic success is far less marked in the student body than among graduates and the public. The lack of interest in studies has been in part due to the fact that the work has been of a nature that should have been done at an earlier age; in part to a misconception that has run through all our educational thought.

"Effort without interest is dulling and yields little; but interest without effort has little permanent value for the mind. If a youth who is directed to take exercise by rowing should be supplied for the purpose with a motor-boat, he would do neither his muscles nor his health much good. There is little use in compelling children to do things simply because they are hard, but it does not follow that studies should be encouraged or offered simply because they are pleasant or easy. Many a boy, many a college student, has thought himself interested in a subject because it required no real effort on his part, and many a teacher has shared the impression of his pupils, when in fact little enduring benefit was gained. True interest comes from almost any effort that is felt to be worth while. To ask in which of several subjects a boy or youth is interested before he has studied any of them is futile, because he has no substantial interest in any of them, but he may acquire a vital interest in any of them if he can be stimulated to throw himself into it with vigor. . .

"We may ask also whether we are not carrying the enthusiasms for schooling too far. Education is by no means confined to formal teaching. It continues throughout life, and sometimes more effectively than in the schoolroom. We may doubt whether a boy who does not want to stay there for the whole secondary period,

who is not and never will be interested in doing so, will really get more education from it than from a job in which he is truly interested; and if not, whether he had better be compelled to remain in school. At present this is heresy; but in my own field I believe that there are young men in college who make a mistake to go there, who look on it as an opening to doors they will never enter. Among its other functions education should be a selective process, not only in directing pupils toward the occupations for which they are fitted, but also in determining to what grade they will best profit by formal instruction."

A. LAWRENCE LOWELL, in *Harvard Alumni Bulletin*.

A DEFENSE OF SCOPES BEFORE THE SUPREME COURT OF TENNESSEE.—"The main contention in my argument was that the Tennessee Act is void because it is violative of the provision in the Tennessee Constitution that the Legislature shall not give a preference to the establishment of one religion over another. I think that is reasonably clear, because the effect of the Act is to prefer the Fundamentalists or Literalists over the Modernists or Liberals in the contention of the former that the Bible must be taken literally in its story of creation.

"I contended further that the teaching profession is entitled to enjoy the 'right of liberty and the pursuit of happiness,' as it is phrased in the Constitution; and that this Act is capricious, intolerant, and unreasonable, and deprives the teachers and their pupils of their liberty without due process of law, and is thus violative of the Fourteenth Amendment. . .

"To sum it up:

"The makers of the Tennessee Constituiton of 1796 refused to withhold office from those who denied that the Bible was written with the authority of God. The Legislature of 1925 makes a public school teacher a criminal for much less. If it hadn't happened, no one would believe it could happen.

"The Legislature of Tennessee in 1796, in deference to the Constitution, refused to fine a man for denying divine authority for the Bible, which of course would include the Biblical story of creation. The Legislature of 1925, in pursuance of the Constitution, does substantially, if not exactly, the reverse. Which course will the court say is constitutional?

"The State seeks to justify this Act on the ground that the legis-

lators are saving the youth of Tennessee from losing their faith in God and immortality and thus becoming disqualified from holding civil office in Tennessee.

"If the teaching of evolution and thus the contradicting of the Bible story of the creation of man, has this tragic result (and it certainly would be tragic), why would not the same results be reached by teaching that the earth was not made in six days, verily six days, and that the earth is not flat but round, and other equally well-known examples? Each of these teachings is denial of literalism; and, if a denial of literalism leads to wreck of the faith in one case, why not in another? The answer is, such denial has no such result. All of which goes to show that such legislation is capricious and arbitrary and has no relation to a legitimate object within the police power or the proprietary control of the State. . . .

"I have paid close attention to the legislative record in the other States since the Tennessee Act was passed. The movement is spreading, and is richly financed by those in control of the *Crusaders' Champion*, the well-known Fundamentalist organ in Florida. The Fundamentalists succeeded in Mississippi in the spring of last year and failed in Louisiana by a close vote, but they turned about immediately and induced the educational authorities of Louisiana to exclude from schools all textbooks in which evolution was taught."

CHARLES H. STRONG, in *The Christian Register*

THE TEACHING OF EVOLUTION IN ARKANSAS.—Copy of a petition which will be presented to the Legislature in January.

"To the Forty-Sixth General Assembly of the State of Arkansas: We, the undersigned citizens, voters, and taxpayers of the State of Arkansas and County of Randolph, believing in the Mosaic account of Creation, and believing the Darwinian theory of the origin of man to be erroneous, false, and misleading, and calculated in its nature to lead men from the truth of God and to instill in the spirit of infidelity;

"Do, therefore, petition your honorable body to enact a law, similar to the 'Tennessee Anti-Evolution Law' with just such changes and modifications as will make it applicable to the State of Arkansas.

Explanation

"We believe in Evolution just as far as it goes; we believe in Evolution in the mineral, vegetable, and animal kingdoms.

"We believe Evolution has produced changes in the earth. Its influence is recognized in the development of machinery and in

the formation of languages and of governments. It produces many varieties of beautiful and useful things as flowers, apples, etc., of hogs, sheep, cattle, etc. It has no doubt produced varieties of men and of monkeys, but we do not believe that any process of Evolution whatever can produce an apple tree from a mustard seed, a milk cow from a bull frog, or a man from a monkey. Such a belief not only disputes reason and science, but it disputes the decrees of the Most High as recorded by His servant, Moses, in Genesis 1:11, 1: 24, 1: 26.

"We ask the *Star Herald* and its exchanges to give this petition publicity. To afford ample notice, we ask all publishers in the State to publish this, however, it may come to their notice. We hope that the citizens of every county of the State will petition their representatives to support this measure."

THE RELATION OF EVOLUTION TO MEDICINE.—"It is only a question of time when the practical value of a clear insight into the evolutionary development of mankind and his exact relationship to other organic forms will be generally recognized, and especially its benefits to the medical research worker of the future.

"I believe that I may state without fear of contradiction from a single one of them that fully one hundred per cent of all those to whom we owe our important advances in modern medicine are not only fully assured of the *fact* of evolution, but, in addition, that they are strongly convinced that the scope and rate of our future advances bear a direct ratio to our better understanding of the biological laws which have guided the course of evolution. Although the same percentage undoubtedly holds among our research workers, we can hardly claim it as prevailing among our colleagues who are engaged in various lines of clinical practice. Their duty lies in distributing to the public the benefits of our improved methods, and their interests are not so intimately associated with the fundamental facts of biology. Nevertheless, only a small minority of them are so unfamiliar with these facts as not to subscribe to their belief in evolution.

"If it were commonly known how thoroughly medical science ratifies the phenomenon of evolution and if the public had a true realization of how intimately this phenomenon is correlated with the present interests and the future progress of medicine, there would surely be far less controversy concerning it among laymen. . .

"Because the indications point to the probability that many of

the greatest benefits to mankind resulting from a better understanding of evolution will be of a physical nature and fall within the jurisdiction of the medical profession, it does not seem unreasonable that we should be looked to to take a leading part in this work. The particular confidence and regard with which we are held by the public impose a fearless seeking after truth on our part wherever it may result to their advantage; and because of that confidence, probably nothing would do more to convince the people at large of the truth of evolution than an open declaration of some sort by the profession of our acceptance of its principles and of our firm belief in the advantages to be gained by its further study."

DUDLEY J. MORTON, in *Science*, No. 1660.

BIOLOGY AND THE TRAINING OF THE CITIZEN.¹—*Science and the Curriculum.* "What is required is by no means the storing of the memory with a vast array of separate facts. It is rather that the budding citizen should be given a grasp of broad principles, as accepted by the competent authorities of the day. Such broad principles are generalizations from immense masses of detail. The probable soundness of the generalization is intimately related to the broadness of its basis of fact. It is, of course, impracticable to place before the pupil the entire body of facts that constitute this base, and if it were possible it would be useless, for it is only a master who is able to perceive clearly the relations of superstructure to base. The object of the teacher is then not to attempt the vain task of demonstrating the truth of the general principle in the short period available; such facts as are introduced should serve merely to illustrate the particular principle and facilitate its appreciation.

"I know that there are many who will criticize as unscientific and unsatisfactory such a simple manner of approach to general principles. They will say you cannot really instill such principles unless you make the pupil go through an elaborate course of laboratory training in dissection and microscopic observation such as we impose upon the specialist student of biology. I do not agree. My experience has been that an audience, whether of youths or of adults, of ordinary average composition such as we get in a public lecture in a big industrial city, appreciates the points and follows

¹ Address by the president of Section D—Zoology—of the British Association for the Advancement of Science.

the argument perfectly satisfactorily without such elaborate preparation, provided always that the argument is clothed in plain, non-technical English.

Biology in the Curriculum.—“The question may now be put: What exactly are the biological facts and principles that should be introduced into such a course of instruction?

“Firstly, the great fact of evolution. We still see with tiresome frequency in magazine articles the statement that evolution is not a fact, but merely an unproved hypothesis. No doubt it may be said with perfect accuracy that in one sense absolute proof is unknown to science, except in relation to successive steps of an operation in pure mathematics. Taking, however, the word ‘proved’ as we use it in ordinary life, *e. g.*, in relation to a matter inquired into by a court of law, then we are completely justified by the data of embryology and paleontology in stating that evolution is a definitely proved fact. The realization that it is a fact admitted by all competent judges should be incorporated in the mental equipment of every citizen at an early stage of his training.

“Secondly, the broad fact of inheritance: the fact that the offspring repeat the characters of the parent—physical, mental, moral—but that this repetition is never so complete as to amount to identity as regards such characters.

“Thirdly and lastly, the fact of the struggle for existence in nature and the consequent elimination of the less fit. To the biologist and, indeed, to any one who devotes thought to the matter, the struggle for existence and the consequent elimination of the unfit is an obvious truism, apart altogether from the question whether or not he accepts the Darwinian view of its potency as a factor causing evolutionary change; but yet among our fellow-citizens interested in sociological questions there is a very prevalent lack of appreciation of the widespread nature and the intensity of the struggle, induced in many cases by the perusal of charming descriptions of mutual aid in the animal kingdom, combined with ignorance of the fact that such mutual aid is restricted to the individuals of a community and is actually an important factor in rendering the community efficient in holding its own in the struggle with other communities. . .

“There are, however, many other aspects of the problem which I refrain from developing, only because forbidden by the tyrant time.

Summing up the more important of these, I would say that the biologist would like to see a movement of our whole educational system away from the merely literary, doctrinaire, academic regions, in which it is apt to be out of touch with the reality of biological fact and practical affairs. He would like to see a far more general recognition of the fact that the primary object of education is to make the individual able rather than learned. A learned individual may be, and often is, a stupid one. And in any case the development and the training of general brain-power fits biologically into the earlier years of life in a way that is not the case with the acquirement of mere learning.

"He would regard as another prime object in the training of the citizen the getting him back towards the primitive habit of thinking constantly. The primitive savage is kept constantly alert by ever-present danger. He is constantly thinking about the meaning of what he sees and hears. Civilized man, freed from the stress of savage life, gets into the habit of not thinking. His actions become automatic. He gulps down whatever is served up to him. If he were only to think he would promptly discriminate as to what is worthy of acceptance and what is not.

"The biologist would like to see still another reawakening of ancient custom, namely, the more effective shackling of personal liberty in the bonds of duty toward the community. Among primitive men one finds a high degree of personal freedom, but this is bounded strictly by the interests of the community. These interests are regarded as sacred, and the offender against them receives prompt and severe punishment. Throughout the long ages of social evolution, the traitor—the blackleg to his country—has ever been regarded as the most despicable of men, and it is a new and strange development of modern times that toleration is extended to those who deliberately work an injury to their country and kindred—it may be on the grounds of their own material interest. A biologically educated community, while according to the individual in his ordinary affairs the widest range of personal freedom, would take measures to prevent effectively its interference with the public welfare, whatever might be the form of this interference."

J. GRAHAM KERR, in *Science*, No. 1656.

PERSONNEL ADMINISTRATION IN THE UNIVERSITY.—"Certainly any thought must show that the first of the problems of faculty

personnel administration, namely, the selection of the faculty, must have the careful oversight of a central authority. Only so can the standards of the various colleges and their internal organizations be maintained as those of a unified institution. It is impracticable in a large institution for the central administration to monopolize the functions of personnel selection. If such a monopolization were possible it would be inefficient. The responsible head of the division concerned should have the largest share of the burden of locating, getting in touch with, and collecting data for the evaluation of prospects for the vacancies in his particular division. But the final selection must be more than perfunctorily sanctioned by the central authority. The individual selected must feel that this has been the case. This is necessary to building up a unified faculty with increasingly high and uniform standards in all colleges and departments of the institution.

"After the faculty member has been selected what is the function of the central administration toward him? Shall active relationship cease? This is too often the condition. After becoming a bona-fide member of the faculty the individual disappears from administrative view. He will come again into the august presence only through some extraordinarily disgraceful or laudable affair.

"Such conditions engender pitiful inefficiency. An individual faculty member may be teaching few or many students, he may be doing little or much independent research, he may be dead or active in the many important non-curricular activities of a university. The results will be the same so far as the central administration is concerned. The academic and financial standing of the individual faculty member will not be affected unless he does or fails to do some particularly noticeable thing. Under such a program the service received by the university from the individual will be decided by himself and by the customs of his particular department or division. The university as a unified organization, with certain standards of work and production, does not exist. No part of an industrial or commercial organization attempting to operate on such lines could exist. . .

"Neither is it the duty of any one to recognize the quality of teaching done. The central administration, or even the college or departmental head in a large institution, knows little about whether faculty member X is a good, poor, or indifferent teacher. The method in common vogue among immediate departmental

associates is to listen to the reports of students or to study the attendance records of the elective courses given. Information so gained, in smaller institutions, may possibly sometimes sift upward through the college dean to the president. . .

"Personnel administration in the university presents many important problems. It is the purpose of this article to attack only one phase of one of these problems, namely, the mechanics which will enable the central administration of a large institution to keep an adequate and current check on individual faculty members. There are three primary requisites these mechanics must meet. They must provide means for showing at a glance the services now being rendered by the individual; they must show the similar services for a period of preceding years; and they should make possible ready and easy computation of instructional and other salary costs. . .

"As an illustration of what may be expected certain results from a survey recently made of one institution may be quoted.

"It was found, for example, that the teaching loads being carried by various faculty members varied from 23.5 hours per week to as low as two hours per week. The middle 50 per cent of the faculty carried teaching loads ranging from 15.5 hours per week to ten hours per week, with a median load of thirteen hours. In the case of one instructor it cost the institution \$32.73 to put him in his classroom for one hour, while similar cost for another was \$1.67 per hour. The middle 50 per cent of the instructors cost between \$6.64 and \$3.97 per hour in the classroom, with a median cost per hour of \$5.20. To instruct one student one hour cost in one instance \$7.01 and in another instance 1.6 cents. The middle 50 per cent of per student hour instructional cost ranged from thirty-four cents to thirteen cents, with a median cost of twenty-one cents.

"There is one important item that should be on this personnel sheet which has not been mentioned. This is a reliable record of the success of the instructor in his classes. This success is being judged and teachers rated thereon in many of our city school systems. These ratings become basic factors in determining salary increases or promotions within a system. Personnel management within the university cannot be efficiently conducted until some such method is introduced. Persons are hired to instruct. Their professional and financial reward should be based upon their success in instructing. To do this, reliable judgments of their success

must be made. They are not made, or attempted, in our universities today.

"In our universities a man is hired to teach, but his advancement depends upon the amount of time he sees fit and is able to steal from his pupils to put into what is euphoniously called 'productive research,' and upon his ability and fitness for that type of work. The good teacher, the conscientious instructor who places his pupils' welfare first is penalized. This is due, first, to the lack of any reliable method of judging the success of a teacher, and, second, to the academic worship of the fetish, research.

"Research is important and cannot be belittled. In a large university there are many men hired specifically to conduct researches of various kinds. There are other men hired with the understanding that they are to put a part or perhaps a majority of their time on research, doing some instructing as a secondary matter. But by far the largest proportion of the faculty in American universities, with their immense enrolment of undergraduate students, must be hired for the primary purpose of instructing. For this great majority their success in instructing should be regarded as primary. It should not be placed in a secondary position or disregarded entirely in favor of 'research activities,' as is now the case in so many of our institutions of higher learning."

E. E. LINDSAY, in *School and Society*, No. 613.

THE FINANCING OF EDUCATIONAL INSTITUTIONS.—"The selling price should equal the cost of the product" in higher education was the declaration of Mr. William C. Dickerman, vice-president of the American Car and Foundry Company, an alumnus and trustee of Lehigh University, in an address recently at the annual founder's day exercises of the university. Mr. Dickerman's topic was "A Business Man's View of the College Educational Problem."

"Stating that the needs of colleges are reaching such proportions that they cannot be met by endowment campaigns and public bequests, Mr. Dickerman discussed ways of meeting the situation.

"Many colleges have already limited their attendance. Others must come to it. With such a policy outlined, the output, as we industrialists call it, becomes determined, and, as necessary sequences, the plant or buildings and working capital or endowment necessary can be ascertained. For the first time in their history

institutions of higher learning will approach their problems as do the industrialists. . . .

"It is questionable whether donations alone can furnish the capital requirements of college and university, and it is my opinion that they should be supplemented by gradually increasing tuition fees until the endowed college, efficiently run and with scholarship of a high quality, finds itself self-supporting. The selling price should equal the cost of the product, which should include charges for depreciation and amortization sufficient to maintain not only the plant but to provide for extensions. . . .

"The private colleges cannot continue indefinitely producing graduates at a financial loss which must be made up by individual philanthropy. Could leadership and inspiration dominate in any institution the result would be an ability to increase tuition fees until the income equalled the cost of the instruction. Such inspired universities would be sought because they furnished what could not be secured elsewhere. Their diplomas would be the hallmark of educational equality and the cost of education would become secondary."

School and Society, No. 616.

THE ORIENTATION OF COLLEGE FRESHMEN.¹—"In this excellent addition to the Human Relation Series, Dr. Doermann has compressed into relatively small compass a wealth of information regarding the College Freshman and his problems. The author's cogent exposition and clear-cut vigorous style enable him to treat his subject thoroughly, yet concisely. There has been undoubted need for sound technical study of the Orientation problem, lucidly and readably presented. Dr. Doermann's work meets this need admirably. It contains both factual information and stimulating comment of value to the specialist, yet should prove, because of its clarity, particularly interesting and valuable also to the educator unversed in technical details and terminology. Therefore a thoughtful perusal of this work, by all college teachers, administrators, and trustees, skeptical of modern educational developments, is hereby prayerfully urged.

"Dr. Brewer's foreword serves as an excellent introduction to the author's own statement of the Freshman problem and its difficulties both for the student and for the administrator. In logical sequence

¹ By Henry J. Doermann, The Williams and Wilkins Co., Baltimore, Md.

Dr. Doermann discusses the need for guidance, describes and criticizes typical current methods, and formulates a comprehensive personnel program. He gives due and well-balanced consideration to the various phases of recent educational progress but the careful study of this problem and maturity of his judgment keep him from rash or uncritical acceptance of new elixirs as assured panaceas.

"The author is to be commended for his attempt to clear away some of the prejudices commonly held by those who 'view with alarm' such terms as 'Vocational Guidance' and 'Orientation.' He emphasizes the essentially *personal* need of successful guidance and states that 'every attempt to minimize the variableness of the human factor vitiates the orientation process.' Furthermore his concept of guidance is sufficiently broad-gage so that even the most conscientious cultural objector cannot logically quarrel with it as being too utilitarian. He wisely opposes any attempt to relieve the student of personal responsibility for his own decisions, and outlines, among other valuable guiding principles for a Personnel Service, the following:

"'Every student must be regarded as a separate and distinct individual... Students must make choices. Every time some one else makes a choice for him the student is deprived of an opportunity of self-development. . . One of the worst errors which the Personnel Service could be guilty of would be to guide students into pre-conceived channels and toward inadequately considered goals.'

"In discussing orientation in some form or other as the one necessary method by which our present heterogeneous and over-diversified curriculum may be integrated into something approaching a unified whole, Dr. Doermann strikes squarely at one of the glaring defects of our present day grab-bag education. The lack of co-ordination or relation between specific requirements and courses, in respect either to one another or to any general pattern or aim recognizable by the student, is well expressed as follows: 'The unity of the curriculum is gone. New courses covering a limited section of a field of knowledge, represented in most cases by a department of the faculty, have been introduced to such a degree that even professors have lost this sense of unity. Little wonder then that undergraduates seldom make the discovery that these courses are parts of a whole. In the mind of the student the attainment of the baccalaureate degree is, and for some time now has been, largely the result of adding up credits.' And again, 'The pros-

pactive college student will search most college catalogues in vain for a statement which conveys in terms intelligible to him what the liberal arts college aims to accomplish. What college today has invited students on the basis of a clear definition of its purpose?" This discussion leads to the conviction that the very question raised, frequently by students themselves, in respect to the orientation problem is what has started the college thinking about its real purpose. Once the importance of orientation has been admitted, the insistence of such questions will force upon the college considerations and definitions which it has already too long evaded.

"That the author himself fully recognizes the importance of a career-motive, in respect both to orientation and guidance, is evidenced by his statement, 'No other motive has the educational potentialities which this one has. . . No orientation is complete until a life career has been found; all orientation is simplified once it is found.' Yet we could wish that he had even more emphatically illustrated his conviction by making the most of several opportunities of citing its application in specific instances. Probably he avoided such further emphasis, lest it might lead to possible controversial corollaries. The inefficiency and duplication in the matter of records at most institutions might also have received more attention, both in criticism of present faults and in suggestions for their elimination. Although, as the author says, record and index systems and all such devices are meaningless in themselves except as they actually result in benefit to the student, a well-planned cumulative record system nevertheless plays so important a part in guidance that he might well have included examples, or a more detailed discussion of some of the improved records cards, recently developed.

"Certain aspects of the general orientation problem are, as may be expected, treated much more fully than others. For instance, the review of present procedure with respect to orientation courses, 'Freshman Week,' etc., is quite comprehensive and informative, while certain other related questions, such as the 'bogie' system of comparing actual with predicted achievement; the advantages and disadvantages of try-out vacation employment; some of the complications introduced by the growing number of self-supporting students; incentives and opportunities provided by scholarship aid, etc., are touched on but lightly. Particularly stimulating is the discussion of possible development of pre-registration guidance. To an even greater extent than the book indicates, the economic

waste resulting from excessive elimination especially of first-year students, should be curbed through a more careful selection—that is, by *pre*-registration rather than *post*-registration elimination. The first-year mortality of over 50 per cent cited for representative State Universities, for instance, falls to 10 per cent or less, in some of the older privately endowed institutions, which, by arbitrary limitation of numbers, are making particularly careful selection among candidates for entrance, in some cases turning away before registration as large a proportion of total applicants as some of the State Universities drop during the Freshman year.

"In conclusion we wish particularly to acclaim the emphasis on an institution's obligation to recognize counseling as no less than the equivalent of teaching. One of the gravest dangers involved in the employment of instructors as student counselors, whether in a general capacity as at Yale, or for a specific guidance as at other institutions, comes from crowding the counselor burden on top of a full teaching load. Either counseling or orientation work is educationally too important a function not to be recognized today as the equivalent, proportionately to the time involved, of teaching itself. Furthermore—and this Dr. Doermann might have stressed more than he does—there is danger that the instructor-counselor, even though relieved of part of his teaching load, be indirectly hampered in professional advancement because devotion to first-year teaching as such and devotion to his counselor's duties both of necessity restrict time for research and publication. Let us hope, as the need for orientation and guidance becomes more and more recognized, that fuller recognition of effective and stimulating teaching is, *mirabile dictu*, fully as worthy of professional recognition and promotion as formal scholarship. Toward all such progress and enlightenment, Dr. Doermann's book is a most valuable contribution."

A. B. CRAWFORD, *Vocational Guidance Magazine*, Vol. 2, No. 2.

LOCAL AND CHAPTER NOTES

FORMATION AND MAINTENANCE OF LOCAL CHAPTERS.—The reasons for the existence and activity of a local chapter have been often and vigorously presented by our Secretary, Professor Tyler. The potency of his arguments is so apparent to those who have been connected with the workings of the Association that it seems superfluous to enlarge upon them again. Without the assistance of a local chairman in regard to various matters upon which we need advice, it is very difficult to conduct the ordinary business of the Association. The officers feel the necessity of continual contact with the thought and point of view of their constituent members in the Association. Without this contact, we sometimes feel that we are making decisions without the support from the membership which is necessary to make the decisions wisely and to carry them out with vigor.

There is also another reason for activity among local chapters which I, personally, feel very keenly. Contrary to the expression of opinion, which sometimes, though ever more rarely, reaches the officers of the Association, that there is no real reason for the existence of the American Association of University Professors, or, if there is a reason, the present activities of the Association are not sufficient justification, I am deeply convinced not only of the wisdom of the existence of such an Association, but also of the importance of its far-reaching, present-day activities. The great difficulty lies in organizing the body of academic thought into a living, vital force for the accomplishment of the purposes we have in hand. The medium of the *Bulletin* and the annual meeting is not sufficient for the organization of academic thought on the problems presented to us for solution. There should be in every institution of higher learning a body of men engaged in the up-building of the academic profession by continuous and penetrating discussions of the problems involved. In this way there will be developed a clearly thought-out body of professional opinion which will be of the greatest value in raising the standards of our profession before the public. Furthermore, there will be developed a habit of thought among our membership which will assume as one of its obligations the obligation of participating in the work of the various committees of the Association and the formulation of their findings.

W. T. SEMPLE, President.

ANTIOCH: ACADEMIC FREEDOM IN ECONOMICS.—The *Bulletin* is glad to publish by permission the following extracts from a letter written by President Morgan of Antioch College to an industrial critic of a teacher of economics.

"A statement of Antioch's general attitude will answer not only the particular question you have in mind, but the general question of which this is but a particular case.

"Since Antioch's very life at present is dependent upon the help of those who, because of locality, economic status, or interest in education, are the ones to whom she naturally first turns for help, I feel justified in asking you to read this statement of our position.

"Two educational methods often come into conflict—that of indoctrination, the process of bringing about conviction, habit, and outlook by the means of suggestion and authoritative statement, rather than by critical inquiry; and the 'scientific method' of critical inquiry and the weighing of evidence, without any feeling of necessity for reaching a predetermined conclusion.

"The most firmly rooted convictions, habits, and outlooks of people are the unreasoned beliefs received by indoctrination. The process of indoctrination is one of the oldest, most universal, and most economical and valuable of educational resources, when used in its proper place. At Antioch we hold that the only proper matter for indoctrination are those principles, outlooks, and habits, concerning the truth or wisdom of which intelligent educated men are in substantially universal agreement. We favor indoctrination in integrity, fair play, courtesy, good will, and a realization of the fact that the fulfilment of life must come through seeking the general good, and not one's own good alone. . .

"To use the method of indoctrination to produce fixed and unreasoned conclusions on matters concerning which intelligent and well-informed men are in disagreement is wrong. In case of unsettled or controversial matters, the right course in teaching is to try to present the evidence for and against, indicating, when practicable the present status of belief of representative people, and then to leave the student to come to his own conclusion. In many cases, of course, the student must realize that he is totally unqualified by training, intelligence, or experience to make any contribution to the solution of the problem. In such cases, his proper attitude is that he does not know and is unqualified to judge, though some-

times he must tentatively adopt the most probable conclusion, or the prevailing authority, for a working assumption.

"The proper field for indoctrination and for the stimulus of critical examination will continually shift. For example, before Copernicus, children were indoctrinated with the belief that the earth was the center of creation. Such a course was proper because that belief was approximately universal among intelligent, educated men. For a century or more after Copernicus a controversy raged, until intelligent educated men everywhere came to believe that the earth is a planet and moves around the sun; and now all American children are properly indoctrinated with the Copernican theory. If the general principle I have outlined is adhered to, and if free inquiry is allowed in all matters, the necessary shifting of specific beliefs from the region of certainty to uncertainty, or vice versa, will be made without violence.

"One of the chief causes of prejudice, sectarianism, industrial unrest, social conflict, and national hatreds, is the fact that we often leave our young people unindoctrinated in such fundamental matters as good health, integrity, fair play, and good will, while we use our time and energy in indoctrinating them in those highly controversial beliefs and attitudes which we or our class happen to hold. I commonly find the typical Marxian socialist so effectively indoctrinated with his highly controversial socialistic views that he is almost immune to reason, and I dare say that you are acquainted with ultra conservatives in your own industrial field who are in a somewhat similar condition.

"We are trying to do away with that state of mind in Antioch students, not only in the field of economics, but everywhere. Antioch stands for free, open inquiry in every field of human interest. We realize that the development of free inquiry is not safe unless with it there is also developed a spirit of self-restraint, social and personal responsibility, and a realization of the seriousness of violating the fundamental laws of personal, social, and economic life. With these safeguards the spirit of free inquiry is a stabilizer of sound social and economic life, and should be encouraged, even at some cost of temporary tranquility.

"Our general economic courses are aimed to acquaint the student with the structure, functions, and problems of economic society. We try to have the student read widely, and become acquainted with the various economic theories which are held by important

schools of thought or classes of society. We try to stimulate independent thinking, reading, and observation, and to refrain from indoctrinating the student with any particular economic creed. So far as our library facilities allow, we encourage him to become acquainted with widely held views, whether or not we personally believe them to be the correct ones.

"The spirit of free, critical inquiry must be genuine, and not make believe. There must be honest effort to find the best expressions of all important points of view. Otherwise the teaching is only camouflaged indoctrination, and that is more immoral than open and honest indoctrination, which makes no pretense of being anything else.

"We do not try to make students believe that the present economic structure of society is satisfactory, and that it ought to be preserved at all costs. We believe it is the duty of the college to lay the foundation for a better state of society without doing unnecessary violence to present policies; and to consider our economic institutions in the light of history and of their apparent drift. The best equipment we can give students to this end, is: first, indoctrination in such underlying habits as integrity, fair dealing, and good will; second, help to a fund of representative and dependable information; third, help in the development of occupational skill; fourth, development of the habit of independent thinking and critical inquiry; and fifth, stimulation of habits of initiative and accomplishment.

"Human relations in industry are of universal and vital concern, and a proper subject of study for college students. The manner and degree in which the various elements of industrial society can cooperate in the administration of industry is not a closed and settled matter to be indoctrinated as a creed. It is a matter for continual exploration and experiment, and will vary from year to year as the technic and spirit of the times vary. Industrial relations policies now in successful operation in industry cover a very wide range of methods and policies. To decide that a college course in industrial relations must present only those points of view which are at present maintained by certain industrial groups would be largely to destroy the value of the course.

"Now, as to the suitableness of the policy of free inquiry for students of college age. The main habits of thought of men and women are determined as a rule by the time they reach the early twenties, if not before. Unless young men and women have established the

habit of independent thinking and critical inquiry by the age of twenty-five, that habit is seldom acquired. Of the men who have made the greatest contributions to human thought, a large proportion were well on the way to developing their habits of mind by the early twenties.

"The spirit and habit of independent inquiry is a stabilizing and not a disturbing factor in a sound industrial society. It dissipates unthinking radicalism at the same time that it discredits the worship of things as they are. It is the best inoculation against the demagogue. I believe that one reason why among Antioch students there is a noticeable absence of the spirit of economic rebellion and radicalism is the fact that unlimited freedom for intellectual inquiry takes away the romantic glamor of forbidden fields. Another reason is that Antioch students alternate study with practical life, and the theories they study about are tested by the facts as they know them. They come to recognize the great extent to which the present economic system is a vital expression of the spirit and needs of the age.

"After having worked in the presence of stupidity, laziness, sabotage, and limitation of production, such as are sometimes in evidence, it is hard for them to visualize a halo on the brow of labor. After seeing the alienation of loyalty and the short-sighted selfishness and the internal friction which sometimes characterize management, they are inclined to doubt the inspired wisdom of capital and management. When they find numerous industries, where there is mutual loyalty and good will, they doubt the inevitableness of class struggle. When they see this good will existing in varying degree in many firms and under a great variety of industrial relations policies, they begin to realize that the spirit counts at least as much as the form."

ARKANSAS.—A set of resolutions adopted by the Senate of the University of Arkansas at a meeting held on May 31, 1926.

It is recognized that many institutions are now offering courses in international relations and that many instructors have in view the ends indicated in the resolutions. It is not intended that any rigid course should be adopted for use in all our institutions without any variation, but it is believed that the "best minds" among our social science teachers and interested persons outside the teaching profession can map out a course of study which will commend itself to most of our teachers, especially those in institutions where such

instructions have not already been provided, and that the influence of having a great number of students in our different colleges and universities working upon such courses at the same time and with a definite end in view will be more effective in implanting a peace psychology than could be realized in most other ways.

Kindly lay the resolutions before your senate or faculty at an early date for its consideration. No institution should feel that it must accept the resolutions just as they stand or reject them in toto. Each may amend as it sees fit, but it is hoped that the general spirit of any resolutions adopted will harmonize with the inclosed set.

Respectfully submitted,

D. V. THOMAS
HARRISON HALE
W. A. FALCONER } Committee.

Resolutions Respecting a Policy of Training for International Peace

WHEREAS, right-thinking and forward-looking people are desirous of bringing about a more stable condition of international peace, and

WHEREAS, the peace of the world for another generation will soon be dependent to a large extent upon the generation now in high school and college, therefore

Be it resolved by the Senate of the University of Arkansas

1. That we believe that the time has come when our colleges and universities should offer special courses in international relations.

2. That these courses should be definitely directed to the study of the causes of war, the best ways of avoiding conflict when disputes arise, and the cultivation of understanding, friendship, and good will as means of establishing permanent peace.

3. That the social science associations of this and other countries be requested to cooperate in mapping out a definite course of study and determining the prerequisites thereof for carrying out this policy.

4. That, when such a course is mapped out, it should be open to, if not actually required of, all students of the grade to which it is adapted.

5. That copies of these resolutions be sent to other universities and colleges for endorsement and that, when so endorsed by a sufficient number of such institutions, copies be sent to the officers of

the social science associations to be laid before their respective bodies for such action as they may see fit to take.

BROWN UNIVERSITY.—The *Alumni Monthly* for January, 1926, reports an interesting plan under which each freshman not living in Providence or its immediate neighborhood now has a responsible alumnus on whom he may call for advice and consultation whenever problems pertaining to college and outside life arise. Many freshmen—there are about 280 of them with advisors—have already availed themselves of the privilege. "The committee made a careful survey of the situation last summer and, after consultation with the University administration, drew up a list of alumni willing to serve as advisors.

"After the list was fully checked, each alumnus advisor received a letter giving him the names of his freshmen, together with their home and college addresses and their particular interests. Each freshman also got a letter with the name, address, and telephone number of his advisor. The letter pointed out that 'a loyal Brown alumnus is always ready to talk over with you problems relating not only to college life but outside life as well. It means also that this alumnus wants to meet you and get acquainted with you.'

"And this pleasant contact, once established, no doubt will continue all through your college career, and may prove at times to be of inestimable value. At least, the hope is that within the next few days you will find time to call on your advisor, if only to shake hands with him and get acquainted. He already has your name and address and is waiting to see you.'

"The freshmen seem to like the idea. There is little question that the alumni advisors approve of it and are doing their part in making it successful."

CINCINNATI, REASONABLE DEMANDS UPON STUDENTS' TIME.¹— "We have had a condition in our faculty meetings which may be the result of tradition, and again it may be due to force of circumstances. A few of the professors have been monopolizing all of the time which could be devoted to discussions, and the rest of the faculty, excepting for an occasional timid soul who, no longer able to hold back his ideas, has launched himself into the midst of the select few, have furnished the audience. Doubtless this condition does not

¹ A brief review of an Investigation in the curricula of the various Departments in the College of Engineering and Commerce at the University of Cincinnati.

confront any of you, although it seems almost inevitable that such a condition must exist in a large faculty, for it is a natural and logical one. There is not even an intimation of criticism, in anything that I shall say, of the professors who use up the major portion of the time at the faculty meetings, for these men are men of broad training who have had extensive experiences in the field of education and engineering, and their contributions to any discussion are of great value. Dean Schneider appreciates that fact, and he has had no desire to limit the free discussion of all topics, but he thought that he was losing something by not having a greater number of men participating in the meetings. He was desirous of hearing the thoughts of the newer men, and was particularly anxious to hear from the young instructors. In order, therefore, that he could be benefited by the thoughts of both groups, he divided his faculty into two parts, the Professors (about twenty men) met with the Dean as an Executive Committee, while the Associate Professors, Assistant Professors, and Instructors (about fifty men) met with him as the younger or Junior faculty.

"The Junior faculty meetings were carried on as regular meetings for the discussion of problems that were pressing for solution. Doubtless the solutions would have been very much the same if obtained by the general faculty, and it is quite significant that the Junior faculty could carry on as though they had been doing so all along. Dean Schneider led the meetings of this younger faculty, until he had directed the discussion through various problems to the big problem which he wanted solved, namely: 'To make a study of the curricula of the various departments to determine whether or not an average student can properly prepare for all of his recitations in a reasonable time.' He did not think that our course was too difficult for our students, but he did think that it might be too 'laborious.' He wished to find out if the students were required to do too much 'hack' work, and also to determine if we had culled out enough of the old material to make room for the new material which we were continually adding to our courses, as we kept pace with the developments of science and the applications of science to engineering. If we found that the situation was not satisfactory then we must formulate remedial measures.

"The faculty agreed to undertake the investigation, and we were then confronted with a real problem. How could we get a fair estimate of the time which students should spend in preparation

for their school work? Obviously, the only way to find out how long it takes to do a thing is to do that thing. Therefore the faculty must needs become students and actually prepare for the recitations just as we require our students to prepare, or rather as we expect the students to prepare.

"The Committee on Statistics was instructed to conduct the investigation and was given power to appoint all necessary subcommittees...

"It was the duty of each committee to investigate the material to be covered during the second semester in all courses taken by the students of the group being investigated by that committee. Take, for example, the committee investigating the courses for the students of the third year in the Department of Chemistry. This committee first obtained from the office a list of all subjects which these students are taking this semester. The committee then visited each of the instructors who are teaching these various subjects and obtained from them an outline of the work to be covered during the semester, and, so far as possible, the distribution of this work by weeks. The instructor giving a course discussed his work with the committee investigating it, and explained how he conducted his lectures, what he expected of the students, and endeavored to give to the investigators the knowledge of this subject which the student should have as he prepared for a recitation. This was particularly necessary because many of the men were investigating courses that were quite out of their own field. However, each committee had one member who represented the department most directly concerned. The instructor giving a course stated his estimate of the time which a student should require in preparation for that course.

"The investigators spent four weeks studying the contents of all courses taken by the students of the group being investigated by them. Each member of the committee read, as though in preparation for a recitation, enough of the assignments in each course to be able to make an estimate of the work of the whole semester. The time taken by the investigators in preparation for a recitation, and the time which the instructor giving the course estimated the students should need, were used by the investigators in making their estimates of the time which students should take...

"The Committee on Statistics studied the reports of the investigators and through this study found that our second-year and third-

year students are very heavily crowded, but that the students of the first year, fourth year, and fifth year, while having enough to do, should be able to prepare all outside work in a reasonable time. It was quite obvious that the serious overcrowding was due to the excessive time spent, outside of laboratory periods, in writing laboratory reports. It was gratifying to find that in the main the lecture courses were not making unreasonable demands upon the students' time. In regard to lecture courses, a slight reduction of the assignments in a few cases, and a redistribution of the work over a couple of years in other cases, would take care of the overcrowding. The remedies were then simple—require all laboratory courses to be completed within the laboratory periods, and limit our assignments for lecture courses so that a student would not require more than three hours per night to prepare for all of his lectures satisfactorily...

"In order to get the students point of view the Committee on Statistics held several meetings with a group of students who were picked by the president of the Student Tribunal (our student governing body). The discussions were very free and were participated in very generally by the students present. The suggestions for the work of the first two years were usually detail questions, particularly with regard to textbooks, showing where texts were difficult and why students had trouble with them—indicated in most cases that the freshmen and sophomores were unable or unwilling to think things out for themselves. The faculty point of view helped these fellows. The suggestions from the upper class men were more constructive and dealt with such questions as the relative value of special problems instead of these, and other questions of equally broad vision. The contact between faculty and students was very much worth while, and the committee expects to propose that such discussions be undertaken every year."

E. S. SMITH, *Journal of Engineering Education*, Vol. XVI, No. 9.

INDIANA.—The Indiana Chapter of the American Association of University Professors has discussed the following topics during the year:

The Grading and Ranking of Students.

University Teaching.

A Study of Grades given by each member of the faculty.

The Graduate School.

University Publicity (report of a Committee appointed to study ways of bringing the idea of the university before the people of the state).

The Indiana Chapter attended the meeting at West Lafayette when Purdue was host to all state chapters of A. A. U. P. and Sigma Xi and a meeting of the Mathematical Association of America.

UNIVERSITY OF WASHINGTON, THE DISMISSAL OF PRESIDENT SUZZALO.—"The climax of a political controversy which has raged in the state of Washington for two years came last week with the dismissal of Dr. Henry Suzzallo as president of the University of Washington. The action was taken by the board of regents of the university. Something of a modification is indicated in an Associated Press dispatch from Seattle, which reports that Dr. Suzzallo was given a leave of absence by the majority of members of the board of regents, all Hartley appointees, when he refused to resign at their request.

"In protest against the action of the regents some students absented themselves from classes, but returned when Dr. Suzzallo counseled the student body not to take part in a strike urged in posters about the campus.

"The Associated Press quotes Paul H. John, secretary of the regents, as saying that Dr. Suzzallo was ousted because he was active in state politics, and A. H. B. Jordan, president of the board, as saying that the removal was ordered because of dissension between Dr. Suzzallo and the university faculty.

"The controversy between Governor Hartley and a majority of the legislature over educational appropriations has caused the sharpest political alignment of any issue in the state during the last five years. The governor has advocated curtailment of appropriations, while the legislators and educators have declared more funds are necessary to meet the expense of increasing enrolment in the higher educational institutions.

"The last legislature voted larger appropriations over the governor's veto after a long fight in which Governor Hartley charged Suzzallo with undue political activity.

"The New York *Times* of October 10 had a comment by Alfred Holman, a veteran editor of the Pacific coast, in which he termed the dismissal 'both a tactical and a moral blunder,' which will prevent dispassionate consideration of the issues in question. He said:

"The points at issue between Governor Hartley and Dr. Suzzallo are founded in conflicting conceptions of the obligation of the state toward education in general and to the university in particular. Dr. Suzzallo visualizes the university as the foremost interest of the state, as entitled to independent organization, and a generous preference in the apportionment of state funds. Specifically he prepared a costly building program at a time when the state treasury is low and taxation high. In brief he favors a wide and an immediate expansion of the functions of the school.

"Governor Hartley takes ground that the university and the whole educational organization are drawing disproportionately on the financial resources of the state. In his view there are too many frills to the system, and he has proposed the creation of an executive board charged with authority to coordinate and administer an educational system "from the kindergarten to the university."

"Instead of considering the issue as above defined upon its merits and in reasonable spirit, it has been thrust into the political arena and affiliated with unrelated issues. For this Governor Hartley is largely, but not wholly, to blame. Other interests assailed by the governor have found it convenient to mingle their grievances with those of the university, and to use that institution as a stalking horse in a general defensive assault against the governor's proposals of reform."

School and Society, No. 616.

In rejecting the offer of the presidency of the University of Washington to succeed Dr. Henry Suzzallo, Mr. Stephen I. Miller made the following statement: "The direction of a great institution of learning can best be determined in an atmosphere of sober reflection and good judgment. In the present atmosphere of conflicting emotions I cannot accept the responsibility for the future policy of the university without the approval of all who have its welfare at heart. The uniform courtesy of those who have placed their information at my disposal will remain a pleasant memory to me." A spokesman for the regents is reported to have said in regard to Mr. Miller's refusal that the board probably would let the matter rest until the present tension had quieted. The alumni association, which has been especially active in its opposition to Governor Hartley and his alleged part in removing Dr. Suzzallo, had announced that no vacancy existed and warned all candidates through the press of their attitude.

School and Society, No. 618.

Resolutions Adopted by the California State Convention of American Federation of Teachers.—WHEREAS, the American Federation of Teachers holds, as one of its fundamental principles, that teachers and school administrators should not be removed for personal or political reasons; and,

WHEREAS, Dr. Henry A. Suzzallo appears to have been removed from the Presidency of the University of Washington for reasons entirely apart from his scholastic or administrative action,

Therefore, *Be it resolved* by the California State Branch of the American Federation of Teachers that we unreservedly condemn the action of the Board of Regents of the University of Washington in arbitrarily removing President Suzzallo, and we heartily commend the Washington State Federation of Labor in their efforts to recall Governor Hartley, to the end that it may be seen that our schools are not to be made the foot-ball of politics; and,

Be it further resolved that this organization will use its influence to resist any attack on the tenure of competent teachers and school administrators.

A Committee of the Council has been appointed to extend any needed assistance to the Local Chapter.

YALE, UNDERGRADUATE ADMINISTRATION.—“Beginning with the present year we plan to put gradually into effect an organization which will eventually insure for each class going through the College a Class Officer whose time is primarily devoted to the interests of that class. He will take them as they come from the Freshman Year and will stay with them until they graduate. This means that under the Dean of the College who of course is the ultimate executive, each Class Officer will be Dean for his class. He should have no difficulty in learning the group in a very short time and inasmuch as they are not passed on to a different man at the end of the year, he ought to be able to make his decisions promptly and justly and he ought to be able in addition to give to the members of the class the individual advice, attention, and help that they need but so frequently lack. Each of the rotating Class Officers will sit with the Executive Committee of the College which carries on the work of the faculty between meetings and which also serves as the Committee on Rules. In all cases of discipline, therefore, which have to go to the Committee the undergraduate will have a representative who knows his full collegiate history. The College Registrar will continue to handle the mechanical end of records but the more personal end of all things having to do with attendance, choice

of studies, and general collegiate interests will be in the hands of the Class Officer. He will of course be perfectly free to appoint a committee to assist him if he finds it necessary but nothing definite will be provided for in advance. Each Class Officer will determine the size of his Advisory Committee and will distribute its duties. Aside from the convenience and efficiency of such an arrangement we believe that the greatest good will be the rather more effective advice and guidance which can be given to men in the choice of their courses and it is hoped that the new arrangement will be a definite step toward making the college courses more vital."

NOMINATIONS FOR MEMBERSHIP

The following seventy-two nominations are printed as provided under Article IV of the Constitution. Objection to any nominee may be addressed to the Secretary, H. W. Tyler, Cambridge, Mass., or to the Chairman of the Committee on Admissions¹ and will be considered by the Committee if received before January 20, 1927.

The Committee on Admissions consists of F. A. Saunders (Harvard), *Chairman*, W. C. Allee (Chicago), Florence Bascom (Bryn Mawr), A. L. Bouton (New York), J. Q. Dealey (Brown), E. C. Hinsdale (Mt. Holyoke), A. L. Keith (South Dakota), G. H. Marx (Stanford).

Fred J. Allen (Chemistry), Purdue
Clarence Foster Barr (Mathematics), Wyoming
J. E. Bathurst (Education), Dakota Wesleyan
George N. Bauer (Mathematics), New Hampshire
Charles E. Benson (Education), New York University
R. B. H. Begg (Civil Engineering), Virginia Polytechnic
Mary V. Braginton (Latin), Mt. Holyoke
W. A. Brumfield (Physical Education), Virginia Polytechnic
M. K. Buckley (Chemistry), Buffalo
Cornelia C. Coulter (Latin), Mount Holyoke
John Higson Cover (Economics), Denver
Alexander Cowie (English), Wesleyan
F. C. Dougherty (Physical Education), Wesleyan
Adolph G. Ekdale (Education and Psychology), New Hampshire
W. T. Ellis (Mechanical Engineering), Virginia Polytechnic
Carl A. Garabedian (Mathematics), Cincinnati
W. H. Garrett (Mathematics), Baker
A. W. Gauger (Mines), North Dakota
J. S. Green, Jr. (English), Union
Harry Gudheim (Mathematics), Virginia Polytechnic
H. W. Guest (Economics), Baker
James H. Hanger (Economics), Syracuse
L. Grant Hector (Physics), Buffalo
Ruby U. Hightower (Mathematics), Shorter
Laura E. Hill (Astronomy), Vassar
S. H. Hill (Physical Education), Wesleyan

¹ Nominations should in all cases be presented through the Secretary, H. W. Tyler, 222 Charles River Road, Cambridge, Mass.

L. C. Humphrey (Chemistry), Whitman
Mark E. Hutchinson (Latin), Cornell (College)
Melvin C. Jacobs (History), Whitman
Harold A. Larrabee (Philosophy), Union
D. W. Lask (Physical Education), Wesleyan
Mary Anna Lawrence (Home Economics), Baker
Henry D. Learned (Romance Languages), North Carolina
Thomas W. Lingle (French), Davidson
Charlotte Loeb (French), N. Y. State College for Teachers
Carrie A. Lyford (Home Economics), New Hampshire
H. G. McCurdy (Physical Education), Wesleyan
George McKie (English), North Carolina
W. R. Macleod (English), Washington and Jefferson
Robert W. Manton (Music), New Hampshire
J. Herbert Marceau (Modern Languages), New Hampshire
Frank E. Marsh (Music), Baker
J. F. Martin (Physical Education), Wesleyan
Fred D. Merritt (Economics), Cornell (College)
James Muilenburg (Biblical Literature), Mt. Holyoke
Roy A. Nelson (Physics), Cornell (College)
S. C. Ogburn (Chemical Engineering), Bucknell
Walter Collins O'Kane (Entomology), New Hampshire
Roland E. Partridge (Languages), New Hampshire
Lawrence Pasel (Economics), Syracuse
Robert E. Post (Farm Economics), South Dakota State
Jens M. Rysgaard (Physics), Hamline
Stanley R. Shimer (Chemistry), New Hampshire
Paul H. Shramm (Architecture), New Hampshire
Willard S. Small (Education), Maryland
Roland M. Smith (English), Wesleyan
Frank A. Sprague (Romance Languages), Bucknell
Henry K. Svenson (Biology), Union
Elizabeth Tappan (Latin), Vassar
Ward H. Taylor (Mathematics), Hamline
Mehran K. Thomson (Philosophy), Baker
Jacob Van derZee (Political Science), Iowa
John S. Walsh (Languages), New Hampshire
G. S. Watkins (Economics), California, So. Br.
Justin O. Wellman (Education), New Hampshire
Herbert A. Wichelns (Public Speaking), Cornell

Wm. J. Williams (Education), Baker
Frances E. Willis (Political Science), Vassar
Karl Wilson Woodward (Forestry), New Hampshire
Edith S. Woodruff (Music), Vassar
Alexander H. Wright (Chemistry), Washington and Jefferson
A. E. Zucker (Modern Languages), Maryland

REVIEW ARTICLE
POLY(1,3-PHENYLENE TEREPHTHALIC ACID)

JOHN R. KELLY AND ROBERT J. STOERK, JR.
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Berkeley, California 94720

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ABSTRACT: A review of the literature on poly(1,3-phenylene terephthalic acid) is presented.

The polymer has been synthesized by a number of methods and its properties have been studied.

It has been found to be soluble in a variety of solvents and to have a number of interesting properties.

The polymer has been used as a model system for the study of the properties of other polymers.

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BULLETIN
OF
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OF UNIVERSITY PROFESSORS

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